



PROJECT MANUAL

FOR

IMPACTED SOILS
EXCAVATION AND DISPOSAL

FORMER L. A. DARLING COMPANY FACILITY
North Bronson Former Facilities - Operable Unit 2
Bronson, Michigan

September 2007

Prepared for
L.A. Darling Company
by
The Avendt Group, Inc.

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**IMPACTED SOILS EXCAVATION ACTIVITIES
FORMER L.A. DARLING FACILITY
BRONSON, MI NBFF – OU2**

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SECTION 00100

INSTRUCTIONS TO BIDDERS

1. Bids
 - A. Each Bidder shall submit a Bid Proposal and a Technical Proposal.
 - B. Each Bid Proposal shall be made on the Bid Form prepared therefor by the Engineer and included as one of the Contract Documents and shall be submitted in a separate sealed envelope bound together with the other Contract Documents except the Plans, bearing the title of the Project and the name of the Bidder.
 - C. Each Technical Proposal shall be submitted in a separate sealed envelope bearing the title of the Project and the name of the Bidder. The Technical Proposal shall include as a minimum the Bidder's proposed Site Operating Plan and Project Schedule.
2. Disqualification of Bidders
 - A. Bidders may be disqualified and their Bid Proposals not considered if:
 1. The bidder fails to complete the Bid Proposal section in its entirety.
 2. More than one Bid Proposal is filed by an individual, firm, partnership or corporation under the same or different names.
 3. Reasonable grounds exist for believing that any bidder is interested in more than one proposal or that collusion exists among the bidders.
 4. Unbalancing of unit price bid items in Bid Proposal is evident in the opinion of the Owner.
3. Examination of Contract Documents and Site
 - A. It is the responsibility of each Bidder before submitting a Bid:
 1. To examine thoroughly the Contract Documents and other related data identified in the Bidding Documents (including "technical data" referred to below);
 - a. Site Specific Work Plan, Soils Removal Activities, Former L.A. Darling Facility, NBFF-OU2, Bronson, MI. contained in Section 00800 Special Conditions.
 - b. Streamlined Feasibility Study (FS) Report, Former L.A. Darling Facility, Bronson, MI North Bronson Former Facilities, Operable Unit 2, prepared by The Avedt Group, Inc. dated June 2007.
 - c. Final Remedial Investigation (RI) Report, Former L.A. Darling Facility, Bronson, MI North Bronson Former Facilities, Operable Unit 2, prepared by The Avedt Group, Inc. dated February 2006.

2. To visit the site to become familiar with and satisfy Bidder as to the general, local and site conditions that may affect cost, progress, performance or furnishing of the Work;
3. To consider federal, state and local Laws and Regulations that may affect cost, progress, performance or furnishing of the Work;
4. To study and carefully correlate Bidder's knowledge and observations with the Contract Documents and such other related data; and
5. To promptly notify Engineer of all conflicts, errors, ambiguities or discrepancies which Bidder has discovered in or between the Contract Documents and such other related documents.

B. Reference is made to the Contract Documents and other related data identified in the Bidding requirements for identification of:

1. Those reports of explorations and tests of surface and subsurface conditions at or contiguous to the site which have been utilized by Engineer in preparation of the Contract Documents. Bidder may rely upon the general accuracy of the "technical data" contained in such reports but not upon other data, interpretations, opinions or information contained in such reports or otherwise relating to the subsurface conditions at the site, nor upon the completeness thereof for the purpose of bidding or construction.
2. Those drawings of physical conditions in or relating to existing surface and subsurface structures (except Underground Facilities) which are at or contiguous to the site that have been utilized by Engineer in preparation of the Contract Documents. Bidder may rely upon the general accuracy of the "technical data" contained in such drawings but not upon other data, interpretations, opinions or information shown or indicated in such drawings or otherwise relating to such structures, nor upon the completeness thereof for the purpose of bidding or construction.
3. Copies of the RI/FS Reports reports and drawings are available at the office of The Avendt Group, Inc., 11149 Pine Needle Drive, Brighton, 48114. Those reports and drawings are not part of the Contract Documents, but the "technical data" contained therein may be reviewed by the Bidder. Bidder is responsible for any interpretation or conclusion drawn from any "technical data" or any such data, interpretation, opinions or information.

C. Information and data shown or indicated in the Contract Documents with respect to existing Underground Facilities at or contiguous to the site is based upon information and data furnished to Engineer by owners of such Underground Facilities or others, and Engineer does not assume responsibility for the accuracy or completeness thereof unless it is expressly provided otherwise in the General and Special Conditions. **Bidders shall note existing live 10 inch ductile iron water main crossing the site in the abandoned Railroad Street right-of-way.**

D. Before submitting a bid each Bidder will be responsible to perform such additional or supplementary examinations, investigations, explorations, tests, studies and data gathering concerning conditions (surface, subsurface and Underground Facilities) at or contiguous to the site or otherwise, which may affect cost, progress, performance or furnishing of the Work or which relate to any aspect of the means, methods,

techniques, sequences or procedures of construction to be employed by Bidder and safety precautions and programs incident thereto or which Bidder deems necessary to determine its Bid for performing and furnishing the Work in accordance with the time, price and other terms and conditions of the Contract Documents.

- E. Reference is made to the Contract Documents for the identification of the general nature of work that may be performed at the site by Owner or others (such as utilities and other prime contractors) that relates to the Site for which a Bid is to be submitted. On request, Owner shall provide to each Bidder for examination access to or copies of Contract Documents (other than portions thereof related to price) for such site work.
- F. The submission of a Bid will constitute an incontrovertible representation by Bidder that Bidder has complied with every requirement of this, that without exception the Bid is premised upon performing and furnishing the Work required by the Contract Documents and applying the specific means, methods, techniques, sequences or procedures of construction (if any) that may be shown or indicated or expressly required by the Contract Documents, that Bidder has given Engineer written notice of all conflicts, errors, ambiguities and discrepancies that Bidder has discovered in the Contract Documents and the written resolutions thereof by Engineer is acceptable to Bidder, and that the Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performing and furnishing the Work.

4. Availability of Lands for Work, etc

The lands upon which the Work is to be performed, rights-of-way and easements for access thereto and other lands designated for use by Contractor in performing the Work are identified in the Contract Documents. All additional lands and access thereto required for temporary construction facilities, construction equipment or storage of materials and equipment to be incorporated in the Work are to be obtained and paid for by Contractor.

5. Interpretations and Addenda

All questions about the meaning or intent of the Bidding Documents are to be submitted to Engineer in writing. Replies will be issued by Addenda mailed or delivered to all parties recorded by Engineer as having received the Bidding Documents. Questions received less than ten days prior to the date for opening of Bids will not be answered. Only questions answered by formal written Addenda will be binding. Oral and other interpretations or clarifications will be without legal effect.

6. Addenda

Any Addenda issued during the time of bidding or forming a part of the Contract Documents shall be included in the Bid Form and shall be a part of the Contract Documents. Receipt of each Addendum shall be acknowledged in the Bid Form.

7. Contract Times

The number of days for the Delivery of Work (the Contract Time) is set forth in the Bid Forms and will be included in the Agreement. Any provisions for Liquidated Damages are set forth in the Contract Documents.

8. Bid Form

- A. The Bid Form is included with the Bidding Documents.

- B. All blanks on the Bid Form must be completed by printing in black ink or by typewriter.
 - C. Bids by corporations must be executed in the corporate name by the president or a vice-president (or other corporate officer accompanied by evidence of authority to sign) and the corporate seal must be affixed and attested by the secretary or an assistance secretary. The corporate address and state of incorporation must be shown below the signature.
 - D. Bids by partnerships must be executed in the partnership name and signed by a partner, whose title must appear under the signature and the official address of the partnership must be shown below the signature.
 - E. All names must be typed or printed in black ink below the signature.
 - F. The Bid shall contain an acknowledgement of receipt of all Addenda (the numbers of which must be filled in on the Bid Form).
 - G. The address and telephone number for communications regarding the Bid must be shown.
 - H. Where the Bid form requires a lump sum bid for a particular item, and further requires bidder to submit a supplementary schedule of unit prices to serve as a basis for price adjustments in case of changes in such item, Owner may, in the event it orders changes in such item, adjust prices payable to Contractor on the basis of such supplemental bids or, if it deems such supplemental bids to be excessive, may adjust prices. Rejection, at any time, of such supplemental bids by Owner will not otherwise affect the balance of the Bid or Contract.
9. Submission of Bids
- A. Bids shall be submitted at the time and place indicated in the Bid Form and shall be enclosed in an opaque sealed envelope, marked with the Project title and name and address of Bidder and accompanied by the Bid security and other required documents. If the Bids are sent through the mail or other delivery system the sealed envelope shall be enclosed in a separate envelope with the notation "BID PROPOSAL ENCLOSED" on the face of it.
 - B. Each prospective Bidder is furnished one copy of the Bidding Documents. The Bid Form shall be unbound, completed and submitted in its entirety.
10. Modification and Withdrawal of Bids
- A. Bids may be modified or withdrawn by an appropriate document duly executed (in the manner that a Bid must be executed) and delivered to the place where Bids are to be submitted at any time prior to the opening of Bids.
 - B. If, within twenty-four hours after Bids are opened, any Bidder files a duly signed, written notice with Owner and promptly thereafter demonstrates to the reasonable satisfaction of Owner that there was a material and substantial mistake in the preparation of its Bid, that Bidder may withdraw its bid. Thereafter, that Bidder will be disqualified from further bidding on the Work to be provided under the Contract Documents.

11. Bids to Remain Subject to Acceptance

All Bids will remain subject to acceptance for sixty days after the day of the Bid opening, but Owner may, in its sole discretion, release any Bid prior to that date.

12. Award of Contract

- A. Owner reserves the right to reject any or all Bids, including without limitation the rights to reject any or all nonconforming, non-responsive, unbalanced or conditional Bids and to reject the Bid of any Bidder if Owner believes that it would not be in the best interest of the Project to make an award to that Bidder, whether because the Bid is not responsive or the Bidder is unqualified or of doubtful financial ability or fails to meet any other pertinent standard or criteria established by Owner. Owner also reserves the right to waive all informalities not involving price, time or changes in the Work and to negotiate contract terms with the Successful Bidder. Discrepancies between the multiplication of units of Work and unit prices will be resolved in favor of the unit prices. Discrepancies between the indicated sum of any column of figures and the correct sum thereof will be resolved in favor of the correct sum. Discrepancies between words and figures will be resolved in favor of the words.
- B. In evaluating Bids, Owner will consider the Technical Proposal, qualifications of Bidders, whether or not the Bids comply with the prescribed requirements, and such alternates, unit prices and other data, as may be requested in the Bid Form or prior to the Notice of Award.
- C. Owner may consider the qualifications and experience of Subcontractors, Suppliers, and other persons and organizations proposed for those portions of the Work as to which the identity of Subcontractors, Suppliers, and other persons and organizations must be submitted. Owner also may consider the operating costs, maintenance requirements, performance data and guarantees of major items of materials and equipment proposed for incorporation in the Work when such data is required to be submitted prior to the Notice of Award.
- D. If a Contract is to be awarded, it will be awarded to the lowest responsible, responsive Bidder. Owner will give the apparent successful Bidder a Notice of Award.

13. Contract Security

Contractor shall, within five days of the delivery of the executed Agreement to Owner, deliver to the Owner the required performance and payment Bonds.

14. Signing of Agreement

When Owner gives a Notice of Award to the Successful Bidder, it will be accompanied by the required number of unsigned counterparts of the Agreement with all other written Contract Documents attached. Within ten days thereafter Contractor shall sign and deliver the required number of counterparts of the Agreement and attached documents to Owner with the required Bonds. Within ten days thereafter Owner shall deliver one fully signed counterpart to Contractor. Each counterpart is to be accompanied by a complete set of the Contract Documents with appropriate identification.

15. Retainage

Provisions concerning retainage and Contractors' retainage are set forth in the General Conditions, Article 14.2.

END OF SECTION

SECTION 00300

BID FORM

BID TO: L.A. Darling Company

BID FROM:

Bidder's name: _____

Bidder's address: _____

THE UNDERSIGNED:

1. Acknowledges receipt of:

A. Project Manual for Former L.A. Darling Facility, Soil Removal Activities, Bronson, MI, NBFF-02

B. Drawings:
Sheets 1 through ____

C. Addenda:

_____ Dated: _____

_____ Dated: _____

2. Has examined all bidding documents. He shall be responsible for performing all work specifically required of him by all parts of the bidding documents, including all drawings and specifications for the entire project.

3. Agrees to:

A. Hold this bid open until 60 calendar days after bid submittal.

B. Accept the provisions of the Instructions to Bidders regarding disposition of bid security.

C. Enter into and execute a contract with The Owner when awarded on the basis of this bid, and in connection therewith to:

1. Furnish all bonds and insurance in accordance with the bidding documents.
2. Accomplish the work in accord with the Contract.
3. Complete the work within the specified contract time.

4. CONTRACT TIME. The Contractor shall complete all the work in accordance with the Agreement within 180 consecutive calendar days from the date of the Notice to Proceed.

5. PROJECT SEQUENCING. The Contractor agrees to provide the work in accordance with the following general project sequencing. The Contractor agrees that the general work and mobilization/site preparation shall proceed any activity associated with the remediation effort. Contractor shall provide a

site operations plan (SOP) detailing the required written documentation for the HASP, QA/QC, Security, Stormwater Management, Soil Sampling, etc.

I – GENERAL WORK

Site Operations Plans – Contractor shall provide a site operations (SOP) the required written documentation for the HASP, QA/QC, Security, Sampling, Etc.

When given Notice to Proceed, begin the mobilization and site preparation work.

II – REMEDIATION

PHASE I: MOBILIZATION:

1. Stabilize and widen existing access roads for construction traffic.
2. Construct any required temporary haul roads after the initial survey work.
3. Identify underground and overhead utilities and obstacles and stabilize the ground to support the construction road traffic.
4. Construct the temporary facilities for personnel, personnel decontamination facilities, parking, etc.
5. Construct decontamination pad as detailed.
6. Site Security
7. Preparation of truck loading area including ground cover, pile cover, area required, transportation to and from stockpile.
8. Selection of off-site stabilization and disposal facilities.

PHASE II: REMEDIAL AREA PREPARATION

1. Dewater, as necessary, all work areas prior to construction. Reroute site drainage patterns, as necessary. Construct the stormwater management facilities as required by the Drainage and Stormwater Management Plan.
2. Survey and stake limits of work as delineated by the Owner or his representative. A benchmark within each contaminated area will be identified by the Owner's field engineer before excavation. At that time a grid system will be created explicitly providing the Contractor with the defined limits of excavation shown in the Site Specific Work Plan (SSWP) Drawings. The contractor is required to provide a surveyor, licensed in Michigan, to stake the limits shown on the Plan Sheets. The Owner's surveyor will check these limits for accuracy.
3. Clear trees, vegetation and any other debris within the limits of work. Dispose of this material as specified in the Specifications. Construct all erosion and sediment control facilities in conjunction with clearing activities.

PHASE III: EXCAVATION

1. Detail the equipment needed and the procedure(s) to be used to excavate the work area to the limits shown on the SSWP drawings in the Specifications and within the grid established by the Owner's Engineer. Phase III work shall be performed sequentially by work area, proceeding with the Former Chemical Material Staging Area,

- the Lead Hot Spot, the Former TCE Degreaser and Sludge Lagoon Area and lastly with the Contaminated Soils and Structures in the Abandoned Railroad Street, working east to west across the right of way.
2. Detail verification sampling in conformance with the remedial verification work plan, specified in the Specifications.
 3. Method of backfill, sources of borrow, compaction requirements.
 4. Stormwater Management
 5. Restoration of remediated areas

Identify
lab in
existing
GAP

PHASE IV: STABILIZATION and ULTIMATE DISPOSAL OPERATIONS

The Contractor shall specify the location and process used in the stabilization of the excavated contaminated materials removed from the Site. The conformance with applicable local, state and federal regulations governing the transportation, stabilization and disposal of this material shall be documented to the satisfaction of the Owner and the U. S. EPA.

Data concerning the effectiveness of the stabilization of the contaminated materials shall be submitted to the Owner for approval. The location and operation of the Contractor's proposed landfill for the stabilized materials shall also require approval of the Owner and U.S.EPA.

PHASE VI: RAILROAD STREET RECONSTRUCTION AND DEMOBILIZATION

The Contractor shall reconstruct the previously abandoned Railroad Street in conformance with the specifications contained in the Project Manual, standard details and as directed by the Engineer.

All types of utilities (both above and below ground), surfaces, sidewalks, curbs, gutters, culverts and other features disturbed, damaged or destroyed during the remediation work under or as a result of the operations of the Contract, shall be restored and maintained, as described in the provisions of the Specifications. Those activities shall include:

1. Equipment, decontamination pads and materials used for remediation shall be cleanup/disposal properly.
 2. All roads, driveways and similar surfaces that have been disturbed or damaged due to remediation work shall be restored as the original condition.
 3. Revegetation
 4. Site cleanup
6. Submit the Cost and Technical Proposals to:
Raymond J. Avendt, Ph.D. PE
c/o L.A. Darling Company
181 West Madison Street
26th Floor
Chicago, IL 60602
Telephone: (312) 372-9500
7. Items 1, 2, 3 & 4 on page 5 are lump sum items requiring a total price for each item to be filled in on the form.

8. Items 5 & 6 are supplemental unit price items requiring a cost per unit plus the total cost for the item based on the multiplication of the unit price times the number of units listed on the form.
9. The TOTAL BASE BID price found on page 5 is the sum total of all individual item costs from the items listed.
10. **BIDS ARE DUE ON October 1, 2007, 4:00 pm Local Time Chicago, IL.**

**FORMER L.A. DARLING FACILITY
BRONSON, MI – NBFF – OU2
SOILS REMOVAL ACTIVITIES
BID FORM**

1. General requirements including the all necessary permit, Site Operations Plan, HASP, Insurance; Taxes, Site Security Plan; Verification Testing Support and Reporting and Construction Management Plan adjustments.

TOTAL AMOUNT FOR ITEM 1:

_____ DOLLARS _____

2. Mobilization/Demobilization including storm water management facilities, the construction and closure of the decontamination pad and truck washing areas, temporary and final fencing and site preparation.

TOTAL AMOUNT OR ITEM 2:

_____ DOLLARS _____

3. Excavation, loading, transfer and stabilization, treatment and disposal with backfill, contouring and restoration of remediated areas and all ancillary work including storm water management.

a. Former Chemical Storage Area: 2,700 CY In-Place times \$_____/CY=_____

b. Lead Hot Spot: 70 CY In-Place times \$_____/CY=_____

c. Contaminated Soils and Structures in Abandoned Railroad Street Area:
1,700 CY In-Place times \$_____/CY=_____

d. Former TCE Degreaser and Sludge Lagoon Area:
3,000 CY In-Place times \$_____/CY=_____

TOTAL AMOUNT FOR ITEMS 3a through 3d:

_____ DOLLARS _____

4. Construction of Railroad Street, complete with concrete curb and gutter, roadbed, asphalt pavement and top coat as specified in place from the intersection of East Railroad and Buchanan Streets and Matteson Street; a distance of approximately 250 linear feet.

TOTAL AMOUNT OR ITEM 4:

_____ DOLLARS _____

TOTAL BASE BID (items 1, 2, 3a through 3d and 4.)

_____ DOLLARS _____

SUPPLEMENTAL UNIT PRICES

SUP-1 Excavation, loading, transfer, stabilization, treatment , ultimate disposal and backfill, contouring and restoration of impacted soils beyond the limits of the planned excavations, all ancillary work including storm water management, as directed by the Engineer

Additional Impacted Soils Areas 500 CY times \$ _____ / CY=

_____ DOLLARS _____

SUP-2 Additional clean backfill, including placement and grading as necessary to raise existing grades at the Former L.A. Darling Facility, as directed by the Engineer.

Additional Backfill 100 CY times \$ _____ / CY=

_____ DOLLARS _____

END OF DOCUMENT

SECTION 00500

AGREEMENT FORM

THIS AGREEMENT, is dated as of the ___ day of _____ in the year 2007 by and between L.A. Darling Company (hereinafter called Owner; in terms of the AGREEMENT being responsible for the Soils Removal Activities) and _____ hereinafter called CONTRACTOR).

OWNER and CONTRACTOR, in consideration of the mutual covenants hereinafter set forth, agree as follows:

ARTICLE 1. WORK

1.1 CONTRACTOR shall complete all work as specified or indicated in the Contract Documents. The work is generally described as follows:

Soils Removal Activities, Former L.A. Darling Facility – NBFF OU2 including impacted material excavation, transportation, stabilization, treatment and disposal, clearing and grubbing, filling and grading, seeding, fencing, site restoration, construction of Railroad Street and all associated work.

ARTICLE 2. REMEDIAL ACTION COORDINATOR AND ENGINEER

The project has been designed under the authority of Raymond J. Avendt Ph.D. PE, who is the Owner's Remedial Action Coordinator who is hereinafter called Engineer and who will assume those duties and responsibilities and will have the rights and authority assigned to Engineer in the Contract Documents in connection with completion of the work in accordance with the Contract Documents.

ARTICLE 3. STARTING AND COMPLETION

The Contractor agrees to commence work under this Contract within 10 calendar days after receipt from the OWNER of a formal Notice to Proceed, and to fully complete all work included in this Contract to the point of final acceptance by the Owner within 180 consecutive calendar days from and including said date. The Contractor agrees to furnish and deliver to the OWNER within five (5) days after award of this Contract the Payment Bond and the insurance certificate(s) and policies required of him by the provisions of the Special Conditions of Contract, and to do all other things required of him by the Contract Documents prerequisite to starting work.

ARTICLE 4. CONTRACT PRICE

OWNER shall pay Contractor for performance of the work in accordance with the Contract Documents in current funds as shown on, the Bid Form, attached.

ARTICLE 5. PAYMENTS TO CONTRACTOR

OWNER agrees with said Contractor to employ, and does hereby employ, the said Contractor to provide the materials and do all the work and all other things herein contained or referred to, for the prices aforesaid and hereby contracts to pay the same at the time, in the manner and upon the conditions set forth or referred to in the Contract Documents; and the said parties for themselves, their heirs, executors, administrators, successors and assigns, do hereby agree to the full performance of the covenants herein contained.

ARTICLE 6. EXTRA WORK

It is expressly understood and hereby agreed to by the Contractor that no claim for extra work will be recognized by the OWNER unless such extra work has been ordered in writing by the OWNER and unless a claim for all such extra work has been filed with the Engineer and the CONTRACTOR within fifteen (15) days after the end of the calendar month in which such alleged work was performed.

ARTICLE 7. CONTRACTOR'S REPRESENTATIVES

In order to induce OWNER to enter into this Agreement, Contractor makes the following representations:

- 7.1 Contractor has familiarized himself with the nature and extent of the Contract Documents, Work, Former L.A. Darling Facility, locality, and with all local conditions and federal, state, and local laws, ordinances, rules, required permits and regulations that in any manner may affect cost, progress, or performance of the work.
- 7.2 Contractor has studied carefully all reports of investigations and tests of subsurface and latent physical conditions at the Former L.A. Darling Facility site or otherwise affecting cost, progress, or performance of the work which were relied upon by Engineer in the preparation of the drawings and specifications and which have been identified in the Instructions to Bidders.
- 7.3 Contractor has made or caused to be made examinations, investigations, and tests and studies of such reports and related data in addition to those referred to in paragraph 7.2 as he deems necessary for the performance of the work at the contract price, within the Contract Time, and in accordance with the other terms and conditions of the Contract Documents; and no additional examinations, investigations, tests reports, or similar data are or will be required by contractor for such purposes.
- 7.4 Contractor has correlated the results of all such observations, examinations, investigations, tests, reports, and data with the terms and conditions of the Contract Documents.
- 7.5 Contractor has given Engineer written notice of all conflicts, errors, or discrepancies that he has discovered in the Contract Documents and the written resolution thereof by Engineer is acceptable to Contractor.

ARTICLE 8. CONTRACT DOCUMENTS

The Contract Documents which comprise the entire agreement between OWNER and CONTRACTOR are attached to this Agreement, made a part hereof, and consists of the following:

1. Instructions to Bidders.
2. Contractor's Bid.
3. This Agreement (Pages 1 to 5, inclusive).
4. Exhibits to this Agreement (pages ____ to ____, inclusive).
5. Bonds.
6. Notice of Award.
7. Notice to Proceed.
8. General Conditions.
9. Special Conditions.
10. Specifications, as listed in Table of Contents of this Volume I of the Contract Documents.

11. Drawings, as listed in Volume II of the Contract Documents.
12. Addenda numbers ____ to ____, inclusive.
13. Any Modification, including Change Orders, duly delivered after execution of Agreement.
14. Documentation submitted by CONTRACTOR prior to Notice of Award.

There are no Contract Documents other than those listed above in this Article. The Contract Documents may only be altered, amended, or repealed by a Modification (as defined in the General Conditions).

ARTICLE 9. MISCELLANEOUS

- 9.1 Terms used in this Agreement which are defined in the General Conditions and Special Conditions shall have the meanings indicated in the General Conditions and Special Conditions.
- 9.2 **Assignment**
No assignment by a party hereto of any rights under or interests in the Contract Documents will be binding on another party hereto without the written consent of the party sought to be bound; and specifically but without limitation, moneys that may become due and moneys that are due may not be assigned without such consent (except to the extent that the effect of this restriction may be limited by law), and unless specifically stated to the contrary in any written consent to an assignment no assignment will release or discharge the assignor from any duty or responsibility under the Contract Documents.
- 9.3 **OWNER and CONTRACTOR each binds himself, his partners, successors, assigns, and legal representatives to the other party hereto, his partners, successors, assigns, and legal representatives in respect to all covenants, agreements, and obligations contained in the Contract Documents.**
- 9.3 **Materials At the Site**
Contractor acknowledges that it has been informed that soils and other waste materials containing metals, cyanide and volatile organic compounds may be present on the Former L.A. Darling Facility site at levels which present or may present a hazard or risk to persons or the environment. If Owner or Engineer receive information, during the term of Contractor's performance of the Work, that some other waste materials at the Site, or some component of such waste materials, present or may present a hazard or risk to persons or the environment, which was not disclosed to Contractor, Owner shall promptly report such information to Contractor.
- 9.4 **Consequential Damages**
Neither Owner nor Engineer shall be liable for any consequential, special or indirect damages or loss of anticipated profits sustained by Contractor or its subcontractors in performance of the Work.
- 9.5 **Independent Contractor**
Contractor, in performing the Work, shall be deemed to be an independent contractor and not the agent or employee of Engineer or Owner. Except as otherwise set forth herein, neither Engineer nor Owner shall have authority to supervise Contractor's employees, representatives or subcontractors, and the Work shall be performed under the supervision and control of Contractor. Contractor shall not have authority to make statements, representations or commitments of any kind or take any other action which would be binding upon Engineer or Owner, except as is now specifically set forth in the Contract Documents or as may be provided in subsequent documents executed by a duly authorized representative of Owner.
- 9.6 **Notice**
Any notice or approval required or contemplated under the provisions of this Agreement or any Contract Documents shall be in writing and shall be delivered personally or sent by certified or registered mail (return receipt requested) or via overnight carrier as follows:

To Contractor:

Attn:

To Owner:

L.A. Darling Company
181 West Madison Street
26th Floor
Chicago, IL 60602

Attn: Raymond J. Avendt
Remedial Action Coordinator

Cc:

Attn: Michael Rodburg
Lowenstein Sandler PC
65 Livingston Avenue
Roseland, N.J. 07068

Notice shall be deemed given on the date actually received by the other party thereto. Either party may change the place to which notice is to be sent by a notice duly given as required herein, and such notification shall not be effective until actually received by the other party thereto.

9.7 Governing Law and Effect of Agreement

This Agreement shall be governed and construed according to the laws of the State of Illinois and shall be binding upon Contractor, Owner and their respective successors.

9.8 Separability

If any section, subsection, sentence or clause of the Agreement is adjudged illegal, invalid or unenforceable such illegality, invalidity or unenforceability shall not effect the legality, validity or enforceability of the Agreement as a whole or of a section, subsection, sentence or clause hereof not so adjudged.

9.9 Entire Agreement

This Agreement, including all Contract Documents, constitutes the entire Agreement between the parties and supersedes all prior negotiations, representations or agreements relating thereto, written or oral. Unless otherwise provided herein, no changes, alterations or modifications to the Agreement shall be effective unless in writing and signed by the respectively duly authorized agents or officers of the parties hereto.

9.10 Table of Contents and Headings

The Table of Contents, headings and subheadings in the Contract Documents are used for convenience and ease of reference, and in no way define, limit or describe the scope or intent of the Contract Documents or any of its provisions.

ARTICLE 10. CONFLICT BETWEEN COMPONENT PARTS OF CONTRACT

In the event that any provision in any of the following component parts of this Contract conflicts with any provision in any other of the following components parts, the provision in the component part first enumerated below shall govern over any other component part which follows it numerically except as may be otherwise specifically stated. Said component parts are the following:

1. Addenda Nos. ____, and ____.
2. Consent Decree
3. Special Conditions
4. General Conditions
5. Specifications
6. Construction Management Plan for the Site Operations Plan.
7. Drawings
8. Instructions to Bidders
9. Bid Form
10. This Instrument (Agreement)

IN WITNESS WHEREOF, the parties hereto have signed this Agreement in triplicate. One counterpart each has been delivered to OWNER, CONTRACTOR and ENGINEER. All portions of the Contract Documents have been signed or identified by OWNER and CONTRACTOR or by ENGINEER on their behalf.

This Agreement will be effective on _____, 2007.

IN WITNESS WHEREOF, the parties have caused this Agreement to be executed in their respective names by their respective officers or agents, duly authorized as of the date and year first written above.

OWNER

L.A. Darling Company

By _____

Title _____

Attest _____

CONTRACTOR

By _____

Title _____

[CORPORATE SEAL]

Attest _____

This document has important legal consequences; consultation with an attorney is encouraged with respect to its use or modification. This document should be adapted to the particular circumstances of the contemplated Project and the Controlling Law.

STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

Prepared by

ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

and

Issued and Published Jointly By

[INSERT LOGOS]

PROFESSIONAL ENGINEERS IN PRIVATE PRACTICE
a practice division of the
NATIONAL SOCIETY OF PROFESSIONAL ENGINEERS

AMERICAN CONSULTING ENGINEERS COUNCIL

AMERICAN SOCIETY OF CIVIL ENGINEERS

This document has been approved and endorsed by

The Associated General [seal] Contractors of America

Construction Specifications Institute

[seal]

These General Conditions have been prepared for use with the Owner-Contractor Agreements (No. 1910-8-A-1 or 1910-8-A-2) (1996 Editions). Their provisions are interrelated and a change in one may necessitate a change in the other. Comments concerning their usage are contained in the EJCDC User's Guide (No. 1910-50). For guidance in the preparation of Supplementary Conditions, see Guide to the Preparation of Supplementary Conditions (No. 1910-17) (1996 Edition).

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GENERAL CONDITIONS

ARTICLE 1 - DEFINITIONS AND TERMINOLOGY

1.01 *Defined Terms* 1.01 *Defined Terms*

A. Wherever used in the Contract Documents and printed with initial or all capital letters, the terms listed below will have the meanings indicated which are applicable to both the singular and plural thereof.

1. *Addenda*--Written or graphic instruments issued prior to the opening of Bids which clarify, correct, or change the Bidding Requirements or the Contract Documents.

2. *Agreement*--The written instrument which is evidence of the agreement between OWNER and CONTRACTOR covering the Work.

3. *Application for Payment*--The form acceptable to ENGINEER which is to be used by CONTRACTOR during the course of the Work in requesting progress or final payments and which is to be accompanied by such supporting documentation as is required by the Contract Documents.

4. *Asbestos*--Any material that contains more than one percent asbestos and is friable or is releasing asbestos fibers into the air above current action levels established by the United States Occupational Safety and Health Administration.

5. *Bid*--The offer or proposal of a bidder submitted on the prescribed form setting forth the prices for the Work to be performed.

6. *Bidding Documents*--The Bidding Requirements and the proposed Contract Documents (including all Addenda issued prior to receipt of Bids).

7. *Bidding Requirements*--The Advertisement or Invitation to Bid, Instructions to Bidders, Bid security form, if any, and the Bid form with any supplements.

8. *Bonds*--Performance and payment bonds and other instruments of security.

9. *Change Order*--A document recommended by ENGINEER which is signed by CONTRACTOR and OWNER and authorizes an addition, deletion, or revision in the Work or an adjustment in the Contract Price or the

Contract Times, issued on or after the Effective Date of the Agreement.

10. *Claim*--A demand or assertion by OWNER or CONTRACTOR seeking an adjustment of Contract Price or Contract Times, or both, or other relief with respect to the terms of the Contract. A demand for money or services by a third party is not a Claim.

11. *Contract*--The entire and integrated written agreement between the OWNER and CONTRACTOR concerning the Work. The Contract supersedes prior negotiations, representations, or agreements, whether written or oral.

12. *Contract Documents*--The Contract Documents establish the rights and obligations of the parties and include the Agreement, Addenda (which pertain to the Contract Documents), CONTRACTOR's Bid (including documentation accompanying the Bid and any post Bid documentation submitted prior to the Notice of Award) when attached as an exhibit to the Agreement, the Notice to Proceed, the Bonds, these General Conditions, the Supplementary Conditions, the Specifications and the Drawings as the same are more specifically identified in the Agreement, together with all Written Amendments, Change Orders, Work Change Directives, Field Orders, and ENGINEER's written interpretations and clarifications issued on or after the Effective Date of the Agreement. Approved Shop Drawings and the reports and drawings of subsurface and physical conditions are not Contract Documents. Only printed or hard copies of the items listed in this paragraph are Contract Documents. Files in electronic media format of text, data, graphics, and the like that may be furnished by OWNER to CONTRACTOR are not Contract Documents.

13. *Contract Price*--The moneys payable by OWNER to CONTRACTOR for completion of the Work in accordance with the Contract Documents as stated in the Agreement (subject to the provisions of paragraph 11.03 in the case of Unit Price Work).

14. *Contract Times*--The number of days or the dates stated in the Agreement to: (i) achieve Substantial Completion; and (ii) complete the Work so that it is ready for final payment as evidenced by ENGINEER's written recommendation of final payment.

15. *CONTRACTOR*--The individual or entity with whom OWNER has entered into the Agreement.

16. *Cost of the Work*--See paragraph 11.01.A for definition.

17. *Drawings*--That part of the Contract Documents prepared or approved by ENGINEER which graphically shows the scope, extent, and character of the Work to be performed by CONTRACTOR. Shop Drawings and other CONTRACTOR submittals are not Drawings as so defined.

18. *Effective Date of the Agreement*--The date indicated in the Agreement on which it becomes effective, but if no such date is indicated, it means the date on which the Agreement is signed and delivered by the last of the two parties to sign and deliver.

19. *ENGINEER*--The individual or entity named as such in the Agreement.

20. *ENGINEER's Consultant*--An individual or entity having a contract with ENGINEER to furnish services as ENGINEER's independent professional associate or consultant with respect to the Project and who is identified as such in the Supplementary Conditions.

21. *Field Order*--A written order issued by ENGINEER which requires minor changes in the Work but which does not involve a change in the Contract Price or the Contract Times.

22. *General Requirements*--Sections of Division 1 of the Specifications. The General Requirements pertain to all sections of the Specifications.

23. *Hazardous Environmental Condition*--The presence at the Site of Asbestos, PCBs, Petroleum, Hazardous Waste, or Radioactive Material in such quantities or circumstances that may present a substantial danger to persons or property exposed thereto in connection with the Work.

24. *Hazardous Waste*--The term Hazardous Waste shall have the meaning provided in Section 1004 of the Solid Waste Disposal Act (42 USC Section 6903) as amended from time to time.

25. *Laws and Regulations; Laws or Regulations*--Any and all applicable laws, rules, regulations, ordinances, codes, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction.

26. *Liens*--Charges, security interests, or encumbrances upon Project funds, real property, or personal property.

27. *Milestone*--A principal event specified in the Contract Documents relating to an intermediate completion date or time prior to Substantial Completion of all the Work.

28. *Notice of Award*--The written notice by OWNER to the apparent successful bidder stating that upon timely compliance by the apparent successful bidder with the conditions precedent listed therein, OWNER will sign and deliver the Agreement.

29. *Notice to Proceed*--A written notice given by OWNER to CONTRACTOR fixing the date on which the Contract Times will commence to run and on which CONTRACTOR shall start to perform the Work under the Contract Documents.

30. *OWNER*--The individual, entity, public body, or authority with whom CONTRACTOR has entered into the Agreement and for whom the Work is to be performed.

31. *Partial Utilization*--Use by OWNER of a substantially completed part of the Work for the purpose for which it is intended (or a related purpose) prior to Substantial Completion of all the Work.

32. *PCBs*--Polychlorinated biphenyls.

33. *Petroleum*--Petroleum, including crude oil or any fraction thereof which is liquid at standard conditions of temperature and pressure (60 degrees Fahrenheit and 14.7 pounds per square inch absolute), such as oil, petroleum, fuel oil, oil sludge, oil refuse, gasoline, kerosene, and oil mixed with other non-Hazardous Waste and crude oils.

34. *Project*--The total construction of which the Work to be performed under the Contract Documents may be the whole, or a part as may be indicated elsewhere in the Contract Documents.

35. *Project Manual*--The bound documentary information prepared for bidding and constructing the Work. A listing of the contents of the Project Manual, which may be bound in one or more volumes, is contained in the table(s) of contents.

36. *Radioactive Material*--Source, special nuclear, or byproduct material as defined by the Atomic Energy Act of 1954 (42 USC Section 2011 et seq.) as amended from time to time.

37. *Resident Project Representative*--The authorized representative of ENGINEER who may be assigned to the Site or any part thereof.

38. *Samples*--Physical examples of materials, equipment, or workmanship that are representative of some portion of the Work and which establish the standards by which such portion of the Work will be judged.

39. *Shop Drawings*--All drawings, diagrams, illustrations, schedules, and other data or information which are specifically prepared or assembled by or for CONTRACTOR and submitted by CONTRACTOR to illustrate some portion of the Work.

40. *Site*--Lands or areas indicated in the Contract Documents as being furnished by OWNER upon which the Work is to be performed, including rights-of-way and easements for access thereto, and such other lands furnished by OWNER which are designated for the use of CONTRACTOR.

41. *Specifications*--That part of the Contract Documents consisting of written technical descriptions of materials, equipment, systems, standards, and workmanship as applied to the Work and certain administrative details applicable thereto.

42. *Subcontractor*--An individual or entity having a direct contract with CONTRACTOR or with any other Subcontractor for the performance of a part of the Work at the Site.

43. *Substantial Completion*--The time at which the Work (or a specified part thereof) has progressed to the point where, in the opinion of ENGINEER, the Work (or a specified part thereof) is sufficiently complete, in accordance with the Contract Documents, so that the Work (or a specified part thereof) can be utilized for the purposes for which it is intended. The terms "substantially complete" and "substantially completed" as applied to all or part of the Work refer to Substantial Completion thereof.

44. *Supplementary Conditions*--That part of the Contract Documents which amends or supplements these General Conditions.

45. *Supplier*--A manufacturer, fabricator, supplier, distributor, materialman, or vendor having a direct contract with CONTRACTOR or with any Subcontractor to furnish materials or equipment to be incorporated in the Work by CONTRACTOR or any Subcontractor.

46. *Underground Facilities*--All underground pipelines, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels, or other such facilities or attachments, and any encasements containing such facilities, including those that convey electricity, gases, steam, liquid petroleum products, telephone or other communications, cable

television, water, wastewater, storm water, other liquids or chemicals, or traffic or other control systems.

47. *Unit Price Work*--Work to be paid for on the basis of unit prices.

48. *Work*--The entire completed construction or the various separately identifiable parts thereof required to be provided under the Contract Documents. Work includes and is the result of performing or providing all labor, services, and documentation necessary to produce such construction, and furnishing, installing, and incorporating all materials and equipment into such construction, all as required by the Contract Documents.

49. *Work Change Directive*--A written statement to CONTRACTOR issued on or after the Effective Date of the Agreement and signed by OWNER and recommended by ENGINEER ordering an addition, deletion, or revision in the Work, or responding to differing or unforeseen subsurface or physical conditions under which the Work is to be performed or to emergencies. A Work Change Directive will not change the Contract Price or the Contract Times but is evidence that the parties expect that the change ordered or documented by a Work Change Directive will be incorporated in a subsequently issued Change Order following negotiations by the parties as to its effect, if any, on the Contract Price or Contract Times.

50. *Written Amendment*--A written statement modifying the Contract Documents, signed by OWNER and CONTRACTOR on or after the Effective Date of the Agreement and normally dealing with the nonengineering or nontechnical rather than strictly construction-related aspects of the Contract Documents.

1.02 Terminology

A. Intent of Certain Terms or Adjectives

1. Whenever in the Contract Documents the terms "as allowed," "as approved," or terms of like effect or import are used, or the adjectives "reasonable," "suitable," "acceptable," "proper," "satisfactory," or adjectives of like effect or import are used to describe an action or determination of ENGINEER as to the Work, it is intended that such action or determination will be solely to evaluate, in general, the completed Work for compliance with the requirements of and information in the Contract Documents and conformance with the design concept of the completed Project as a functioning whole as shown or indicated in the Contract Documents (unless there is a specific statement indicating otherwise). The use of any such term or adjective shall not be effective to assign to ENGINEER

any duty or authority to supervise or direct the performance of the Work or any duty or authority to undertake responsibility contrary to the provisions of paragraph 9.10 or any other provision of the Contract Documents.

B. Day

1. The word "day" shall constitute a calendar day of 24 hours measured from midnight to the next midnight.

C. Defective

1. The word "defective," when modifying the word "Work," refers to Work that is unsatisfactory, faulty, or deficient in that it does not conform to the Contract Documents or does not meet the requirements of any inspection, reference standard, test, or approval referred to in the Contract Documents, or has been damaged prior to ENGINEER's recommendation of final payment (unless responsibility for the protection thereof has been assumed by OWNER at Substantial Completion in accordance with paragraph 14.04 or 14.05).

D. Furnish, Install, Perform, Provide

1. The word "furnish," when used in connection with services, materials, or equipment, shall mean to supply and deliver said services, materials, or equipment to the Site (or some other specified location) ready for use or installation and in usable or operable condition.

2. The word "install," when used in connection with services, materials, or equipment, shall mean to put into use or place in final position said services, materials, or equipment complete and ready for intended use.

3. The words "perform" or "provide," when used in connection with services, materials, or equipment, shall mean to furnish and install said services, materials, or equipment complete and ready for intended use.

4. When "furnish," "install," "perform," or "provide" is not used in connection with services, materials, or equipment in a context clearly requiring an obligation of CONTRACTOR, "provide" is implied.

E. Unless stated otherwise in the Contract Documents, words or phrases which have a well-known technical

or construction industry or trade meaning are used in the Contract Documents in accordance with such recognized meaning.

ARTICLE 2 - PRELIMINARY MATTERS

2.01 *Delivery of Bonds* 2.01 *Delivery of Bonds*

A. When CONTRACTOR delivers the executed Agreements to OWNER, CONTRACTOR shall also deliver to OWNER such Bonds as CONTRACTOR may be required to furnish.

2.02 *Copies of Documents* 2.02 *Copies of Documents*

A. OWNER shall furnish to CONTRACTOR up to ten copies of the Contract Documents. Additional copies will be furnished upon request at the cost of reproduction.

2.03 *Commencement of Contract Times; Notice to Proceed* 2.03 *Commencement of Contract Times; Notice to Proceed*

A. The Contract Times will commence to run on the thirtieth day after the Effective Date of the Agreement or, if a Notice to Proceed is given, on the day indicated in the Notice to Proceed. A Notice to Proceed may be given at any time within 30 days after the Effective Date of the Agreement. In no event will the Contract Times commence to run later than the sixtieth day after the day of Bid opening or the thirtieth day after the Effective Date of the Agreement, whichever date is earlier.

2.04 *Starting the Work* 2.04 *Starting the Work*

A. CONTRACTOR shall start to perform the Work on the date when the Contract Times commence to run. No Work shall be done at the Site prior to the date on which the Contract Times commence to run.

2.05 *Before Starting Construction* 2.05 *Before Starting Construction*

A. *CONTRACTOR's Review of Contract Documents:* Before undertaking each part of the Work, CONTRACTOR shall carefully study and compare the Contract Documents and check and verify pertinent figures therein and all applicable field measurements. CONTRACTOR shall promptly report in writing to ENGINEER any conflict, error, ambiguity, or discrepancy which CONTRACTOR may discover and shall obtain a written interpretation or clarification from ENGINEER before proceeding with any Work affected thereby;

however, CONTRACTOR shall not be liable to OWNER or ENGINEER for failure to report any conflict, error, ambiguity, or discrepancy in the Contract Documents unless CONTRACTOR knew or reasonably should have known thereof.

B. *Preliminary Schedules:* Within ten days after the Effective Date of the Agreement (unless otherwise specified in the General Requirements), CONTRACTOR shall submit to ENGINEER for its timely review:

1. a preliminary progress schedule indicating the times (numbers of days or dates) for starting and completing the various stages of the Work, including any Milestones specified in the Contract Documents;

2. a preliminary schedule of Shop Drawing and Sample submittals which will list each required submittal and the times for submitting, reviewing, and processing such submittal; and

3. a preliminary schedule of values for all of the Work which includes quantities and prices of items which when added together equal the Contract Price and subdivides the Work into component parts in sufficient detail to serve as the basis for progress payments during performance of the Work. Such prices will include an appropriate amount of overhead and profit applicable to each item of Work.

C. *Evidence of Insurance:* Before any Work at the Site is started, CONTRACTOR and OWNER shall each deliver to the other, with copies to each additional insured identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance which either of them or any additional insured may reasonably request) which CONTRACTOR and OWNER respectively are required to purchase and maintain in accordance with Article 5.

2.06 *Preconstruction Conference*2.06 *Preconstruction Conference*

A. Within 20 days after the Contract Times start to run, but before any Work at the Site is started, a conference attended by CONTRACTOR, ENGINEER, and others as appropriate will be held to establish a working understanding among the parties as to the Work and to discuss the schedules referred to in paragraph 2.05.B, procedures for handling Shop Drawings and other submittals, processing Applications for Payment, and maintaining required records.

2.07 *Initial Acceptance of Schedules*2.07Initial *Acceptance of Schedules*

A. Unless otherwise provided in the Contract Documents, at least ten days before submission of the first Application for Payment a conference attended by CONTRACTOR, ENGINEER, and others as appropriate will be held to review for acceptability to ENGINEER as provided below the schedules submitted in accordance with paragraph 2.05.B. CONTRACTOR shall have an additional ten days to make corrections and adjustments and to complete and resubmit the schedules. No progress payment shall be made to CONTRACTOR until acceptable schedules are submitted to ENGINEER.

1. The progress schedule will be acceptable to ENGINEER if it provides an orderly progression of the Work to completion within any specified Milestones and the Contract Times. Such acceptance will not impose on ENGINEER responsibility for the progress schedule, for sequencing, scheduling, or progress of the Work nor interfere with or relieve CONTRACTOR from CONTRACTOR's full responsibility therefor.

2. CONTRACTOR's schedule of Shop Drawing and Sample submittals will be acceptable to ENGINEER if it provides a workable arrangement for reviewing and processing the required submittals.

3. CONTRACTOR's schedule of values will be acceptable to ENGINEER as to form and substance if it provides a reasonable allocation of the Contract Price to component parts of the Work.

ARTICLE 3 - CONTRACT DOCUMENTS: INTENT, AMENDING, REUSE

3.01 *Intent*3.01 *Intent*

A. The Contract Documents are complementary; what is called for by one is as binding as if called for by all.

B. It is the intent of the Contract Documents to describe a functionally complete Project (or part thereof) to be constructed in accordance with the Contract Documents. Any labor, documentation, services, materials, or equipment that may reasonably be inferred from the Contract Documents or from prevailing custom or trade usage as being required to produce the intended result will be

provided whether or not specifically called for at no additional cost to OWNER.

C. Clarifications and interpretations of the Contract Documents shall be issued by ENGINEER as provided in Article 9.

3.02 *Reference Standards* 3.02 *Reference Standards*

A. *Standards, Specifications, Codes, Laws, and Regulations*

1. Reference to standards, specifications, manuals, or codes of any technical society, organization, or association, or to Laws or Regulations, whether such reference be specific or by implication, shall mean the standard, specification, manual, code, or Laws or Regulations in effect at the time of opening of Bids (or on the Effective Date of the Agreement if there were no Bids), except as may be otherwise specifically stated in the Contract Documents.

2. No provision of any such standard, specification, manual or code, or any instruction of a Supplier shall be effective to change the duties or responsibilities of OWNER, CONTRACTOR, or ENGINEER, or any of their subcontractors, consultants, agents, or employees from those set forth in the Contract Documents, nor shall any such provision or instruction be effective to assign to OWNER, ENGINEER, or any of ENGINEER's Consultants, agents, or employees any duty or authority to supervise or direct the performance of the Work or any duty or authority to undertake responsibility inconsistent with the provisions of the Contract Documents.

3.03 *Reporting and Resolving Discrepancies* 3.03 *Reporting and Resolving Discrepancies*

A. *Reporting Discrepancies*

1. If, during the performance of the Work, CONTRACTOR discovers any conflict, error, ambiguity, or discrepancy within the Contract Documents or between the Contract Documents and any provision of any Law or Regulation applicable to the performance of the Work or of any standard, specification, manual or code, or of any instruction of any Supplier, CONTRACTOR shall report it to ENGINEER in writing at once. CONTRACTOR shall not proceed with the Work affected thereby (except in an emergency as required by paragraph 6.16.A) until an amendment or supplement to the

Contract Documents has been issued by one of the methods indicated in paragraph 3.04; provided, however, that CONTRACTOR shall not be liable to OWNER or ENGINEER for failure to report any such conflict, error, ambiguity, or discrepancy unless CONTRACTOR knew or reasonably should have known thereof.

B. *Resolving Discrepancies*

1. Except as may be otherwise specifically stated in the Contract Documents, the provisions of the Contract Documents shall take precedence in resolving any conflict, error, ambiguity, or discrepancy between the provisions of the Contract Documents and:

a. the provisions of any standard, specification, manual, code, or instruction (whether or not specifically incorporated by reference in the Contract Documents); or

b. the provisions of any Laws or Regulations applicable to the performance of the Work (unless such an interpretation of the provisions of the Contract Documents would result in violation of such Law or Regulation).

3.04 *Amending and Supplementing Contract Documents* 3.04 *Amending and Supplementing Contract Documents*

A. The Contract Documents may be amended to provide for additions, deletions, and revisions in the Work or to modify the terms and conditions thereof in one or more of the following ways: (i) a Written Amendment; (ii) a Change Order; or (iii) a Work Change Directive.

B. The requirements of the Contract Documents may be supplemented, and minor variations and deviations in the Work may be authorized, by one or more of the following ways: (i) a Field Order; (ii) ENGINEER's approval of a Shop Drawing or Sample; or (iii) ENGINEER's written interpretation or clarification.

3.05 *Reuse of Documents* 3.05 *Reuse of Documents*

A. CONTRACTOR and any Subcontractor or Supplier or other individual or entity performing or furnishing any of the Work under a direct or indirect contract with OWNER: (i) shall not have or acquire any title to or ownership rights in any of the Drawings, Specifications, or other documents (or copies of any thereof) prepared by or bearing the seal of ENGINEER or ENGINEER's Consultant, including electronic media

editions; and (ii) shall not reuse any of such Drawings, Specifications, other documents, or copies thereof on extensions of the Project or any other project without written consent of OWNER and ENGINEER and specific written verification or adaption by ENGINEER. This prohibition will survive final payment, completion, and acceptance of the Work, or termination or completion of the Contract. Nothing herein shall preclude CONTRACTOR from retaining copies of the Contract Documents for record purposes.

ARTICLE 4 - AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL CONDITIONS; REFERENCE POINTS

4.01 *Availability of Lands*4.01 *Availability of Lands*

A. OWNER shall furnish the Site. OWNER shall notify CONTRACTOR of any encumbrances or restrictions not of general application but specifically related to use of the Site with which CONTRACTOR must comply in performing the Work. OWNER will obtain in a timely manner and pay for easements for permanent structures or permanent changes in existing facilities. If CONTRACTOR and OWNER are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times, or both, as a result of any delay in OWNER's furnishing the Site, CONTRACTOR may make a Claim therefor as provided in paragraph 10.05.

B. Upon reasonable written request, OWNER shall furnish CONTRACTOR with a current statement of record legal title and legal description of the lands upon which the Work is to be performed and OWNER's interest therein as necessary for giving notice of or filing a mechanic's or construction lien against such lands in accordance with applicable Laws and Regulations.

C. CONTRACTOR shall provide for all additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment.

4.02 *Subsurface and Physical Conditions*4.02 *Subsurface and Physical Conditions*

A. *Reports and Drawings:* The Supplementary Conditions identify:

1. those reports of explorations and tests of subsurface conditions at or contiguous to the Site

that ENGINEER has used in preparing the Contract Documents; and

2. those drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the Site (except Underground Facilities) that ENGINEER has used in preparing the Contract Documents.

B. *Limited Reliance by CONTRACTOR on Technical Data Authorized:* CONTRACTOR may rely upon the general accuracy of the "technical data" contained in such reports and drawings, but such reports and drawings are not Contract Documents. Such "technical data" is identified in the Supplementary Conditions. Except for such reliance on such "technical data," CONTRACTOR may not rely upon or make any Claim against OWNER, ENGINEER, or any of ENGINEER's Consultants with respect to:

1. the completeness of such reports and drawings for CONTRACTOR's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences, and procedures of construction to be employed by CONTRACTOR, and safety precautions and programs incident thereto; or

2. other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings; or

3. any CONTRACTOR interpretation of or conclusion drawn from any "technical data" or any such other data, interpretations, opinions, or information.

4.03 *Differing Subsurface or Physical Conditions*4.03 *Differing Subsurface or Physical Conditions*

A. *Notice:* If CONTRACTOR believes that any subsurface or physical condition at or contiguous to the Site that is uncovered or revealed either:

1. is of such a nature as to establish that any "technical data" on which CONTRACTOR is entitled to rely as provided in paragraph 4.02 is materially inaccurate; or

2. is of such a nature as to require a change in the Contract Documents; or

3. differs materially from that shown or indicated in the Contract Documents; or

4. is of an unusual nature, and differs materially from conditions ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract Documents;

then CONTRACTOR shall, promptly after becoming aware thereof and before further disturbing the subsurface or physical conditions or performing any Work in connection therewith (except in an emergency as required by paragraph 6.16.A), notify OWNER and ENGINEER in writing about such condition. CONTRACTOR shall not further disturb such condition or perform any Work in connection therewith (except as aforesaid) until receipt of written order to do so.

B. *ENGINEER's Review:* After receipt of written notice as required by paragraph 4.03.A, ENGINEER will promptly review the pertinent condition, determine the necessity of OWNER's obtaining additional exploration or tests with respect thereto, and advise OWNER in writing (with a copy to CONTRACTOR) of ENGINEER's findings and conclusions.

C. *Possible Price and Times Adjustments*

1. The Contract Price or the Contract Times, or both, will be equitably adjusted to the extent that the existence of such differing subsurface or physical condition causes an increase or decrease in CONTRACTOR's cost of, or time required for, performance of the Work; subject, however, to the following:

a. such condition must meet any one or more of the categories described in paragraph 4.03.A; and

b. with respect to Work that is paid for on a Unit Price Basis, any adjustment in Contract Price will be subject to the provisions of paragraphs 9.08 and 11.03.

2. CONTRACTOR shall not be entitled to any adjustment in the Contract Price or Contract Times if:

a. CONTRACTOR knew of the existence of such conditions at the time CONTRACTOR made a final commitment to OWNER in respect of Contract Price and Contract Times by the submission of a Bid or becoming bound under a negotiated contract; or

b. the existence of such condition could reasonably have been discovered or revealed as a

result of any examination, investigation, exploration, test, or study of the Site and contiguous areas required by the Bidding Requirements or Contract Documents to be conducted by or for CONTRACTOR prior to CONTRACTOR's making such final commitment; or

c. CONTRACTOR failed to give the written notice within the time and as required by paragraph 4.03.A.

3. If OWNER and CONTRACTOR are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times, or both, a Claim may be made therefor as provided in paragraph 10.05. However, OWNER, ENGINEER, and ENGINEER's Consultants shall not be liable to CONTRACTOR for any claims, costs, losses, or damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by CONTRACTOR on or in connection with any other project or anticipated project.

4.04 *Underground Facilities* *Underground Facilities*

A. *Shown or Indicated:* The information and data shown or indicated in the Contract Documents with respect to existing Underground Facilities at or contiguous to the Site is based on information and data furnished to OWNER or ENGINEER by the owners of such Underground Facilities, including OWNER, or by others. Unless it is otherwise expressly provided in the Supplementary Conditions:

1. OWNER and ENGINEER shall not be responsible for the accuracy or completeness of any such information or data; and

2. the cost of all of the following will be included in the Contract Price, and CONTRACTOR shall have full responsibility for:

a. reviewing and checking all such information and data,

b. locating all Underground Facilities shown or indicated in the Contract Documents,

c. coordination of the Work with the owners of such Underground Facilities, including OWNER, during construction, and

d. the safety and protection of all such Underground Facilities and repairing any damage thereto resulting from the Work.

B. Not Shown or Indicated

1. If an Underground Facility is uncovered or revealed at or contiguous to the Site which was not shown or indicated, or not shown or indicated with reasonable accuracy in the Contract Documents, CONTRACTOR shall, promptly after becoming aware thereof and before further disturbing conditions affected thereby or performing any Work in connection therewith (except in an emergency as required by paragraph 6.16.A), identify the owner of such Underground Facility and give written notice to that owner and to OWNER and ENGINEER. ENGINEER will promptly review the Underground Facility and determine the extent, if any, to which a change is required in the Contract Documents to reflect and document the consequences of the existence or location of the Underground Facility. During such time, CONTRACTOR shall be responsible for the safety and protection of such Underground Facility.

2. If ENGINEER concludes that a change in the Contract Documents is required, a Work Change Directive or a Change Order will be issued to reflect and document such consequences. An equitable adjustment shall be made in the Contract Price of Contract Times, or both, to the extent that they are attributable to the existence or location of any Underground Facility that was not shown or indicated or not shown or indicated with reasonable accuracy in the Contract Documents and that CONTRACTOR did not know of and could not reasonably have been expected to be aware of or to have anticipated. If OWNER and CONTRACTOR are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment in Contract Price or Contract Times, OWNER or CONTRACTOR may make a Claim therefor as provided in paragraph 10.05.

4.05 Reference Points **4.05 Reference Points**

A. OWNER shall provide engineering surveys to establish reference points for construction which in ENGINEER's judgment are necessary to enable CONTRACTOR to proceed with the Work. CONTRACTOR shall be responsible for laying out the Work, shall protect and preserve the established reference points and property monuments, and shall make no changes or relocations without the prior written approval of OWNER.

CONTRACTOR shall report to ENGINEER whenever any reference point or property monument is lost or destroyed or requires relocation because of necessary changes in grades or locations, and shall be responsible for the accurate replacement or relocation of such reference points or property monuments by professionally qualified personnel.

4.06 Hazardous Environmental Condition at Site **4.06 Hazardous Environmental Condition at Site**

A. *Reports and Drawings:* Reference is made to the Supplementary Conditions for the identification of those reports and drawings relating to a Hazardous Environmental Condition identified at the Site, if any, that have been utilized by the ENGINEER in the preparation of the Contract Documents.

B. *Limited Reliance by CONTRACTOR on Technical Data Authorized:* CONTRACTOR may rely upon the general accuracy of the "technical data" contained in such reports and drawings, but such reports and drawings are not Contract Documents. Such "technical data" is identified in the Supplementary Conditions. Except for such reliance on such "technical data," CONTRACTOR may not rely upon or make any Claim against OWNER, ENGINEER or any of ENGINEER's Consultants with respect to:

1. the completeness of such reports and drawings for CONTRACTOR's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences and procedures of construction to be employed by CONTRACTOR and safety precautions and programs incident thereto; or

2. other data, interpretations, opinions and information contained in such reports or shown or indicated in such drawings; or

3. any CONTRACTOR interpretation of or conclusion drawn from any "technical data" or any such other data, interpretations, opinions or information.

C. CONTRACTOR shall not be responsible for any Hazardous Environmental Condition uncovered or revealed at the Site which was not shown or indicated in Drawings or Specifications or identified in the Contract Documents to be within the scope of the Work. CONTRACTOR shall be responsible for a Hazardous Environmental Condition created with any materials brought to the Site by CONTRACTOR, Subcontractors, Suppliers, or anyone else for whom CONTRACTOR is responsible.

D. If CONTRACTOR encounters a Hazardous Environmental Condition or if CONTRACTOR or anyone for whom CONTRACTOR is responsible creates a Hazardous Environmental Condition, CONTRACTOR shall immediately: (i) secure or otherwise isolate such condition; (ii) stop all Work in connection with such condition and in any area affected thereby (except in an emergency as required by paragraph 6.16); and (iii) notify OWNER and ENGINEER (and promptly thereafter confirm such notice in writing). OWNER shall promptly consult with ENGINEER concerning the necessity for OWNER to retain a qualified expert to evaluate such condition or take corrective action, if any.

E. CONTRACTOR shall not be required to resume Work in connection with such condition or in any affected area until after OWNER has obtained any required permits related thereto and delivered to CONTRACTOR written notice: (i) specifying that such condition and any affected area is or has been rendered safe for the resumption of Work; or (ii) specifying any special conditions under which such Work may be resumed safely. If OWNER and CONTRACTOR cannot agree as to entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times, or both, as a result of such Work stoppage or such special conditions under which Work is agreed to be resumed by CONTRACTOR, either party may make a Claim therefor as provided in paragraph 10.05.

F. If after receipt of such written notice CONTRACTOR does not agree to resume such Work based on a reasonable belief it is unsafe, or does not agree to resume such Work under such special conditions, then OWNER may order the portion of the Work that is in the area affected by such condition to be deleted from the Work. If OWNER and CONTRACTOR cannot agree as to entitlement to or on the amount or extent, if any, of an adjustment in Contract Price or Contract Times as a result of deleting such portion of the Work, then either party may make a Claim therefor as provided in paragraph 10.05. OWNER may have such deleted portion of the Work performed by OWNER's own forces or others in accordance with Article 7.

G. To the fullest extent permitted by Laws and Regulations, OWNER shall indemnify and hold harmless CONTRACTOR, Subcontractors, ENGINEER, ENGINEER's Consultants and the officers, directors, partners, employees, agents, other consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition, provided that such

Hazardous Environmental Condition: (i) was not shown or indicated in the Drawings or Specifications or identified in the Contract Documents to be included within the scope of the Work, and (ii) was not created by CONTRACTOR or by anyone for whom CONTRACTOR is responsible. Nothing in this paragraph 4.06.E shall obligate OWNER to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.

H. To the fullest extent permitted by Laws and Regulations, CONTRACTOR shall indemnify and hold harmless OWNER, ENGINEER, ENGINEER's Consultants, and the officers, directors, partners, employees, agents, other consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition created by CONTRACTOR or by anyone for whom CONTRACTOR is responsible. Nothing in this paragraph 4.06.F shall obligate CONTRACTOR to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.

I. The provisions of paragraphs 4.02, 4.03, and 4.04 are not intended to apply to a Hazardous Environmental Condition uncovered or revealed at the Site.

ARTICLE 5 - BONDS AND INSURANCE

5.01 *Performance, Payment, and Other Bonds*

A. CONTRACTOR shall furnish performance and payment Bonds, each in an amount at least equal to the Contract Price as security for the faithful performance and payment of all CONTRACTOR's obligations under the Contract Documents. These Bonds shall remain in effect at least until one year after the date when final payment becomes due, except as provided otherwise by Laws or Regulations or by the Contract Documents. CONTRACTOR shall also furnish such other Bonds as are required by the Contract Documents.

B. All Bonds shall be in the form prescribed by the Contract Documents except as provided otherwise by Laws or Regulations, and shall be executed by such sureties as are named in the current list of "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in

Circular 570 (amended) by the Financial Management Service, Surety Bond Branch, U.S. Department of the Treasury. All Bonds signed by an agent must be accompanied by a certified copy of such agent's authority to act.

C. If the surety on any Bond furnished by CONTRACTOR is declared bankrupt or becomes insolvent or its right to do business is terminated in any state where any part of the Project is located or it ceases to meet the requirements of paragraph 5.01.B, CONTRACTOR shall within 20 days thereafter substitute another Bond and surety, both of which shall comply with the requirements of paragraphs 5.01.B and 5.02.

5.02 *Licensed Sureties and Insurers* 5.02 *Licensed Sureties and Insurers*

A. All Bonds and insurance required by the Contract Documents to be purchased and maintained by OWNER or CONTRACTOR shall be obtained from surety or insurance companies that are duly licensed or authorized in the jurisdiction in which the Project is located to issue Bonds or insurance policies for the limits and coverages so required. Such surety and insurance companies shall also meet such additional requirements and qualifications as may be provided in the Supplementary Conditions.

5.03 *Certificates of Insurance* 5.03 *Certificates of Insurance*

A. CONTRACTOR shall deliver to OWNER, with copies to each additional insured identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance requested by OWNER or any other additional insured) which CONTRACTOR is required to purchase and maintain. OWNER shall deliver to CONTRACTOR, with copies to each additional insured identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance requested by CONTRACTOR or any other additional insured) which OWNER is required to purchase and maintain.

5.04 *CONTRACTOR's Liability Insurance* 5.04 *CONTRACTOR's Liability Insurance*

A. CONTRACTOR shall purchase and maintain such liability and other insurance as is appropriate for the Work being performed and as will provide protection from claims set forth below which may arise out of or result from CONTRACTOR's performance of the Work and CONTRACTOR's other obligations under the Contract Documents, whether it is to be performed by CONTRACTOR, any Subcontractor or Supplier, or by anyone directly or indirectly employed by any of them to

perform any of the Work, or by anyone for whose acts any of them may be liable:

1. claims under workers' compensation, disability benefits, and other similar employee benefit acts;

2. claims for damages because of bodily injury, occupational sickness or disease, or death of CONTRACTOR's employees;

3. claims for damages because of bodily injury, sickness or disease, or death of any person other than CONTRACTOR's employees;

4. claims for damages insured by reasonably available personal injury liability coverage which are sustained: (i) by any person as a result of an offense directly or indirectly related to the employment of such person by CONTRACTOR, or (ii) by any other person for any other reason;

5. claims for damages, other than to the Work itself, because of injury to or destruction of tangible property wherever located, including loss of use resulting therefrom; and

6. claims for damages because of bodily injury or death of any person or property damage arising out of the ownership, maintenance or use of any motor vehicle.

B. The policies of insurance so required by this paragraph 5.04 to be purchased and maintained shall:

1. with respect to insurance required by paragraphs 5.04.A.3 through 5.04.A.6 inclusive, include as additional insureds (subject to any customary exclusion in respect of professional liability) OWNER, ENGINEER, ENGINEER's Consultants, and any other individuals or entities identified in the Supplementary Conditions, all of whom shall be listed as additional insureds, and include coverage for the respective officers, directors, partners, employees, agents, and other consultants and subcontractors of each and any of all such additional insureds, and the insurance afforded to these additional insureds shall provide primary coverage for all claims covered thereby;

2. include at least the specific coverages and be written for not less than the limits of liability provided in the Supplementary Conditions or required by Laws or Regulations, whichever is greater;

3. include completed operations insurance;
4. include contractual liability insurance covering CONTRACTOR's indemnity obligations under paragraphs 6.07, 6.11, and 6.20;

5. contain a provision or endorsement that the coverage afforded will not be canceled, materially changed or renewal refused until at least thirty days prior written notice has been given to OWNER and CONTRACTOR and to each other additional insured identified in the Supplementary Conditions to whom a certificate of insurance has been issued (and the certificates of insurance furnished by the CONTRACTOR pursuant to paragraph 5.03 will so provide);

6. remain in effect at least until final payment and at all times thereafter when CONTRACTOR may be correcting, removing, or replacing defective Work in accordance with paragraph 13.07; and

7. with respect to completed operations insurance, and any insurance coverage written on a claims-made basis, remain in effect for at least two years after final payment (and CONTRACTOR shall furnish OWNER and each other additional insured identified in the Supplementary Conditions, to whom a certificate of insurance has been issued, evidence satisfactory to OWNER and any such additional insured of continuation of such insurance at final payment and one year thereafter).

5.05 OWNER's Liability Insurance 5.05 OWNER's Liability Insurance

A. In addition to the insurance required to be provided by CONTRACTOR under paragraph 5.04, OWNER, at OWNER's option, may purchase and maintain at OWNER's expense OWNER's own liability insurance as will protect OWNER against claims which may arise from operations under the Contract Documents.

5.06 Property Insurance 5.06 Property Insurance

A. Unless otherwise provided in the Supplementary Conditions, OWNER shall purchase and maintain property insurance upon the Work at the Site in the amount of the full replacement cost thereof (subject to such deductible amounts as may be provided in the Supplementary Conditions or required by Laws and Regulations). This insurance shall:

1. include the interests of OWNER, CONTRACTOR, Subcontractors, ENGINEER, ENGINEER's Consultants, and any other individuals or entities identified in the Supplementary Conditions, and the officers, directors, partners, employees, agents, and other consultants and subcontractors of each and any of them, each of whom is deemed to have an insurable interest and shall be listed as an additional insured;

2. be written on a Builder's Risk "all-risk" or open peril or special causes of loss policy form that shall at least include insurance for physical loss or damage to the Work, temporary buildings, false work, and materials and equipment in transit, and shall insure against at least the following perils or causes of loss: fire, lightning, extended coverage, theft, vandalism and malicious mischief, earthquake, collapse, debris removal, demolition occasioned by enforcement of Laws and Regulations, water damage, and such other perils or causes of loss as may be specifically required by the Supplementary Conditions;

3. include expenses incurred in the repair or replacement of any insured property (including but not limited to fees and charges of engineers and architects);

4. cover materials and equipment stored at the Site or at another location that was agreed to in writing by OWNER prior to being incorporated in the Work, provided that such materials and equipment have been included in an Application for Payment recommended by ENGINEER;

5. allow for partial utilization of the Work by OWNER;

6. include testing and startup; and

7. be maintained in effect until final payment is made unless otherwise agreed to in writing by OWNER, CONTRACTOR, and ENGINEER with 30 days written notice to each other additional insured to whom a certificate of insurance has been issued.

B. OWNER shall purchase and maintain such boiler and machinery insurance or additional property insurance as may be required by the Supplementary Conditions or Laws and Regulations which will include the interests of OWNER, CONTRACTOR, Subcontractors, ENGINEER, ENGINEER's Consultants, and any other individuals or entities identified in the Supplementary Conditions, each of

whom is deemed to have an insurable interest and shall be listed as an insured or additional insured.

C. All the policies of insurance (and the certificates or other evidence thereof) required to be purchased and maintained in accordance with paragraph 5.06 will contain a provision or endorsement that the coverage afforded will not be canceled or materially changed or renewal refused until at least 30 days prior written notice has been given to OWNER and CONTRACTOR and to each other additional insured to whom a certificate of insurance has been issued and will contain waiver provisions in accordance with paragraph 5.07.

D. OWNER shall not be responsible for purchasing and maintaining any property insurance specified in this paragraph 5.06 to protect the interests of CONTRACTOR, Subcontractors, or others in the Work to the extent of any deductible amounts that are identified in the Supplementary Conditions. The risk of loss within such identified deductible amount will be borne by CONTRACTOR, Subcontractors, or others suffering any such loss, and if any of them wishes property insurance coverage within the limits of such amounts, each may purchase and maintain it at the purchaser's own expense.

E. If CONTRACTOR requests in writing that other special insurance be included in the property insurance policies provided under paragraph 5.06, OWNER shall, if possible, include such insurance, and the cost thereof will be charged to CONTRACTOR by appropriate Change Order or Written Amendment. Prior to commencement of the Work at the Site, OWNER shall in writing advise CONTRACTOR whether or not such other insurance has been procured by OWNER.

5.07 *Waiver of Rights* 5.07 *Waiver of Rights*

A. OWNER and CONTRACTOR intend that all policies purchased in accordance with paragraph 5.06 will protect OWNER, CONTRACTOR, Subcontractors, ENGINEER, ENGINEER's Consultants, and all other individuals or entities identified in the Supplementary Conditions to be listed as insureds or additional insureds (and the officers, directors, partners, employees, agents, and other consultants and subcontractors of each and any of them) in such policies and will provide primary coverage for all losses and damages caused by the perils or causes of loss covered thereby. All such policies shall contain provisions to the effect that in the event of payment of any loss or damage the insurers will have no rights of recovery against any of the insureds or additional insureds thereunder. OWNER and CONTRACTOR waive all rights against each other and their respective officers, directors, partners, employees, agents, and other consultants and

subcontractors of each and any of them for all losses and damages caused by, arising out of or resulting from any of the perils or causes of loss covered by such policies and any other property insurance applicable to the Work; and, in addition, waive all such rights against Subcontractors, ENGINEER, ENGINEER's Consultants, and all other individuals or entities identified in the Supplementary Conditions to be listed as insureds or additional insureds (and the officers, directors, partners, employees, agents, and other consultants and subcontractors of each and any of them) under such policies for losses and damages so caused. None of the above waivers shall extend to the rights that any party making such waiver may have to the proceeds of insurance held by OWNER as trustee or otherwise payable under any policy so issued.

B. OWNER waives all rights against CONTRACTOR, Subcontractors, ENGINEER, ENGINEER's Consultants, and the officers, directors, partners, employees, agents, and other consultants and subcontractors of each and any of them for:

1. loss due to business interruption, loss of use, or other consequential loss extending beyond direct physical loss or damage to OWNER's property or the Work caused by, arising out of, or resulting from fire or other peril whether or not insured by OWNER; and

2. loss or damage to the completed Project or part thereof caused by, arising out of, or resulting from fire or other insured peril or cause of loss covered by any property insurance maintained on the completed Project or part thereof by OWNER during partial utilization pursuant to paragraph 14.05, after Substantial Completion pursuant to paragraph 14.04, or after final payment pursuant to paragraph 14.07.

C. Any insurance policy maintained by OWNER covering any loss, damage or consequential loss referred to in paragraph 5.07.B shall contain provisions to the effect that in the event of payment of any such loss, damage, or consequential loss, the insurers will have no rights of recovery against CONTRACTOR, Subcontractors, ENGINEER, or ENGINEER's Consultants and the officers, directors, partners, employees, agents, and other consultants and subcontractors of each and any of them.

5.08 *Receipt and Application of Insurance Proceeds* 5.08 *Receipt and Application of Insurance Proceeds*

A. Any insured loss under the policies of insurance required by paragraph 5.06 will be adjusted with OWNER

and made payable to OWNER as fiduciary for the insureds, as their interests may appear, subject to the requirements of any applicable mortgage clause and of paragraph 5.08.B. OWNER shall deposit in a separate account any money so received and shall distribute it in accordance with such agreement as the parties in interest may reach. If no other special agreement is reached, the damaged Work shall be repaired or replaced, the moneys so received applied on account thereof, and the Work and the cost thereof covered by an appropriate Change Order or Written Amendment.

B. OWNER as fiduciary shall have power to adjust and settle any loss with the insurers unless one of the parties in interest shall object in writing within 15 days after the occurrence of loss to OWNER's exercise of this power. If such objection be made, OWNER as fiduciary shall make settlement with the insurers in accordance with such agreement as the parties in interest may reach. If no such agreement among the parties in interest is reached, OWNER as fiduciary shall adjust and settle the loss with the insurers and, if required in writing by any party in interest, OWNER as fiduciary shall give bond for the proper performance of such duties.

5.09 Acceptance of Bonds and Insurance; Option to Replace
5.09 Acceptance of Bonds and Insurance; Option to Replace

A. If either OWNER or CONTRACTOR has any objection to the coverage afforded by or other provisions of the Bonds or insurance required to be purchased and maintained by the other party in accordance with Article 5 on the basis of non-conformance with the Contract Documents, the objecting party shall so notify the other party in writing within 10 days after receipt of the certificates (or other evidence requested) required by paragraph 2.05.C. OWNER and CONTRACTOR shall each provide to the other such additional information in respect of insurance provided as the other may reasonably request. If either party does not purchase or maintain all of the Bonds and insurance required of such party by the Contract Documents, such party shall notify the other party in writing of such failure to purchase prior to the start of the Work, or of such failure to maintain prior to any change in the required coverage. Without prejudice to any other right or remedy, the other party may elect to obtain equivalent Bonds or insurance to protect such other party's interests at the expense of the party who was required to provide such coverage, and a Change Order shall be issued to adjust the Contract Price accordingly.

5.10 Partial Utilization, Acknowledgment of Property Insurer
5.10 Partial Utilization, Acknowledgment of Property Insurer

A. If OWNER finds it necessary to occupy or use a portion or portions of the Work prior to Substantial Completion of all the Work as provided in paragraph 14.05, no such use or occupancy shall commence before the insurers providing the property insurance pursuant to paragraph 5.06 have acknowledged notice thereof and in writing effected any changes in coverage necessitated thereby. The insurers providing the property insurance shall consent by endorsement on the policy or policies, but the property insurance shall not be canceled or permitted to lapse on account of any such partial use or occupancy.

ARTICLE 6 - CONTRACTOR'S RESPONSIBILITIES

6.01 Supervision and Superintendence
6.01 Supervision and Superintendence

A. CONTRACTOR shall supervise, inspect, and direct the Work competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the Work in accordance with the Contract Documents. CONTRACTOR shall be solely responsible for the means, methods, techniques, sequences, and procedures of construction, but CONTRACTOR shall not be responsible for the negligence of OWNER or ENGINEER in the design or specification of a specific means, method, technique, sequence, or procedure of construction which is shown or indicated in and expressly required by the Contract Documents. CONTRACTOR shall be responsible to see that the completed Work complies accurately with the Contract Documents.

B. At all times during the progress of the Work, CONTRACTOR shall assign a competent resident superintendent thereto who shall not be replaced without written notice to OWNER and ENGINEER except under extraordinary circumstances. The superintendent will be CONTRACTOR's representative at the Site and shall have authority to act on behalf of CONTRACTOR. All communications given to or received from the superintendent shall be binding on CONTRACTOR.

6.02 Labor; Working Hours
6.02 Labor; Working Hours

A. CONTRACTOR shall provide competent, suitably qualified personnel to survey, lay out, and construct the Work as required by the Contract Documents. CON-

TRACTOR shall at all times maintain good discipline and order at the Site.

B. Except as otherwise required for the safety or protection of persons or the Work or property at the Site or adjacent thereto, and except as otherwise stated in the Contract Documents, all Work at the Site shall be performed during regular working hours, and CONTRACTOR will not permit overtime work or the performance of Work on Saturday, Sunday, or any legal holiday without OWNER's written consent (which will not be unreasonably withheld) given after prior written notice to ENGINEER.

6.03 *Services, Materials, and Equipment*

A. Unless otherwise specified in the General Requirements, CONTRACTOR shall provide and assume full responsibility for all services, materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water, sanitary facilities, temporary facilities, and all other facilities and incidentals necessary for the performance, testing, start-up, and completion of the Work.

B. All materials and equipment incorporated into the Work shall be as specified or, if not specified, shall be of good quality and new, except as otherwise provided in the Contract Documents. All warranties and guarantees specifically called for by the Specifications shall expressly run to the benefit of OWNER. If required by ENGINEER, CONTRACTOR shall furnish satisfactory evidence (including reports of required tests) as to the source, kind, and quality of materials and equipment. All materials and equipment shall be stored, applied, installed, connected, erected, protected, used, cleaned, and conditioned in accordance with instructions of the applicable Supplier, except as otherwise may be provided in the Contract Documents.

6.04 *Progress Schedule*

A. CONTRACTOR shall adhere to the progress schedule established in accordance with paragraph 2.07 as it may be adjusted from time to time as provided below.

1. CONTRACTOR shall submit to ENGINEER for acceptance (to the extent indicated in paragraph 2.07) proposed adjustments in the progress schedule that will not result in changing the Contract Times (or Milestones). Such adjustments will conform generally to the progress schedule then in effect and additionally will comply with any

provisions of the General Requirements applicable thereto.

2. Proposed adjustments in the progress schedule that will change the Contract Times (or Milestones) shall be submitted in accordance with the requirements of Article 12. Such adjustments may only be made by a Change Order or Written Amendment in accordance with Article 12.

6.05 *Substitutes and "Or-Equals"*

A. Whenever an item of material or equipment is specified or described in the Contract Documents by using the name of a proprietary item or the name of a particular Supplier, the specification or description is intended to establish the type, function, appearance, and quality required. Unless the specification or description contains or is followed by words reading that no like, equivalent, or "or-equal" item or no substitution is permitted, other items of material or equipment or material or equipment of other Suppliers may be submitted to ENGINEER for review under the circumstances described below.

1. *"Or-Equal" Items:* If in ENGINEER's sole discretion an item of material or equipment proposed by CONTRACTOR is functionally equal to that named and sufficiently similar so that no change in related Work will be required, it may be considered by ENGINEER as an "or-equal" item, in which case review and approval of the proposed item may, in ENGINEER's sole discretion, be accomplished without compliance with some or all of the requirements for approval of proposed substitute items. For the purposes of this paragraph 6.05.A.1, a proposed item of material or equipment will be considered functionally equal to an item so named if:

a. in the exercise of reasonable judgment ENGINEER determines that: (i) it is at least equal in quality, durability, appearance, strength, and design characteristics; (ii) it will reliably perform at least equally well the function imposed by the design concept of the completed Project as a functioning whole, and;

b. CONTRACTOR certifies that: (i) there is no increase in cost to the OWNER; and (ii) it will conform substantially, even with deviations, to the detailed requirements of the item named in the Contract Documents.

2. *Substitute Items*

a. If in ENGINEER's sole discretion an item of material or equipment proposed by CONTRACTOR does not qualify as an "or-equal" item under paragraph 6.05.A.1, it will be considered a proposed substitute item.

b. CONTRACTOR shall submit sufficient information as provided below to allow ENGINEER to determine that the item of material or equipment proposed is essentially equivalent to that named and an acceptable substitute therefor. Requests for review of proposed substitute items of material or equipment will not be accepted by ENGINEER from anyone other than CONTRACTOR.

c. The procedure for review by ENGINEER will be as set forth in paragraph 6.05.A.2.d, as supplemented in the General Requirements and as ENGINEER may decide is appropriate under the circumstances.

d. CONTRACTOR shall first make written application to ENGINEER for review of a proposed substitute item of material or equipment that CONTRACTOR seeks to furnish or use. The application shall certify that the proposed substitute item will perform adequately the functions and achieve the results called for by the general design, be similar in substance to that specified, and be suited to the same use as that specified. The application will state the extent, if any, to which the use of the proposed substitute item will prejudice CONTRACTOR's achievement of Substantial Completion on time, whether or not use of the proposed substitute item in the Work will require a change in any of the Contract Documents (or in the provisions of any other direct contract with OWNER for work on the Project) to adapt the design to the proposed substitute item and whether or not incorporation or use of the proposed substitute item in connection with the Work is subject to payment of any license fee or royalty. All variations of the proposed substitute item from that specified will be identified in the application, and available engineering, sales, maintenance, repair, and replacement services will be indicated. The application will also contain an itemized estimate of all costs or credits that will result directly or indirectly from use of such substitute item, including costs of redesign and claims of other contractors affected by any resulting change, all of which will be

considered by ENGINEER in evaluating the proposed substitute item. ENGINEER may require CONTRACTOR to furnish additional data about the proposed substitute item.

B. Substitute Construction Methods or Procedures: If a specific means, method, technique, sequence, or procedure of construction is shown or indicated in and expressly required by the Contract Documents, CONTRACTOR may furnish or utilize a substitute means, method, technique, sequence, or procedure of construction approved by ENGINEER. CONTRACTOR shall submit sufficient information to allow ENGINEER, in ENGINEER's sole discretion, to determine that the substitute proposed is equivalent to that expressly called for by the Contract Documents. The procedure for review by ENGINEER will be similar to that provided in subparagraph 6.05.A.2.

C. Engineer's Evaluation: ENGINEER will be allowed a reasonable time within which to evaluate each proposal or submittal made pursuant to paragraphs 6.05.A and 6.05.B. ENGINEER will be the sole judge of acceptability. No "or-equal" or substitute will be ordered, installed or utilized until ENGINEER's review is complete, which will be evidenced by either a Change Order for a substitute or an approved Shop Drawing for an "or equal." ENGINEER will advise CONTRACTOR in writing of any negative determination.

D. Special Guarantee: OWNER may require CONTRACTOR to furnish at CONTRACTOR's expense a special performance guarantee or other surety with respect to any substitute.

E. ENGINEER's Cost Reimbursement: ENGINEER will record time required by ENGINEER and ENGINEER's Consultants in evaluating substitute proposed or submitted by CONTRACTOR pursuant to paragraphs 6.05.A.2 and 6.05.B and in making changes in the Contract Documents (or in the provisions of any other direct contract with OWNER for work on the Project) occasioned thereby. Whether or not ENGINEER approves a substitute item so proposed or submitted by CONTRACTOR, CONTRACTOR shall reimburse OWNER for the charges of ENGINEER and ENGINEER's Consultants for evaluating each such proposed substitute.

F. CONTRACTOR's Expense: CONTRACTOR shall provide all data in support of any proposed substitute or "or-equal" at CONTRACTOR's expense.

6.06 *Concerning Subcontractors, Suppliers, and Others*

A. CONTRACTOR shall not employ any Subcontractor, Supplier, or other individual or entity (including those acceptable to OWNER as indicated in paragraph 6.06.B), whether initially or as a replacement, against whom OWNER may have reasonable objection. CONTRACTOR shall not be required to employ any Subcontractor, Supplier, or other individual or entity to furnish or perform any of the Work against whom CONTRACTOR has reasonable objection.

B. If the Supplementary Conditions require the identity of certain Subcontractors, Suppliers, or other individuals or entities to be submitted to OWNER in advance for acceptance by OWNER by a specified date prior to the Effective Date of the Agreement, and if CONTRACTOR has submitted a list thereof in accordance with the Supplementary Conditions, OWNER's acceptance (either in writing or by failing to make written objection thereto by the date indicated for acceptance or objection in the Bidding Documents or the Contract Documents) of any such Subcontractor, Supplier, or other individual or entity so identified may be revoked on the basis of reasonable objection after due investigation. CONTRACTOR shall submit an acceptable replacement for the rejected Subcontractor, Supplier, or other individual or entity, and the Contract Price will be adjusted by the difference in the cost occasioned by such replacement, and an appropriate Change Order will be issued or Written Amendment signed. No acceptance by OWNER of any such Subcontractor, Supplier, or other individual or entity, whether initially or as a replacement, shall constitute a waiver of any right of OWNER or ENGINEER to reject defective Work.

C. CONTRACTOR shall be fully responsible to OWNER and ENGINEER for all acts and omissions of the Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work just as CONTRACTOR is responsible for CONTRACTOR's own acts and omissions. Nothing in the Contract Documents shall create for the benefit of any such Subcontractor, Supplier, or other individual or entity any contractual relationship between OWNER or ENGINEER and any such Subcontractor, Supplier or other individual or entity, nor shall it create any obligation on the part of OWNER or ENGINEER to pay or to see to the payment of any moneys due any such Subcontractor, Supplier, or other individual or entity except as may otherwise be required by Laws and Regulations.

D. CONTRACTOR shall be solely responsible for scheduling and coordinating the Work of Subcontractors,

Suppliers, and other individuals or entities performing or furnishing any of the Work under a direct or indirect contract with CONTRACTOR.

E. CONTRACTOR shall require all Subcontractors, Suppliers, and such other individuals or entities performing or furnishing any of the Work to communicate with ENGINEER through CONTRACTOR.

F. The divisions and sections of the Specifications and the identifications of any Drawings shall not control CONTRACTOR in dividing the Work among Subcontractors or Suppliers or delineating the Work to be performed by any specific trade.

G. All Work performed for CONTRACTOR by a Subcontractor or Supplier will be pursuant to an appropriate agreement between CONTRACTOR and the Subcontractor or Supplier which specifically binds the Subcontractor or Supplier to the applicable terms and conditions of the Contract Documents for the benefit of OWNER and ENGINEER. Whenever any such agreement is with a Subcontractor or Supplier who is listed as an additional insured on the property insurance provided in paragraph 5.06, the agreement between the CONTRACTOR and the Subcontractor or Supplier will contain provisions whereby the Subcontractor or Supplier waives all rights against OWNER, CONTRACTOR, ENGINEER, ENGINEER's Consultants, and all other individuals or entities identified in the Supplementary Conditions to be listed as insureds or additional insureds (and the officers, directors, partners, employees, agents, and other consultants and subcontractors of each and any of them) for all losses and damages caused by, arising out of, relating to, or resulting from any of the perils or causes of loss covered by such policies and any other property insurance applicable to the Work. If the insurers on any such policies require separate waiver forms to be signed by any Subcontractor or Supplier, CONTRACTOR will obtain the same.

6.07 *Patent Fees and Royalties*

A. CONTRACTOR shall pay all license fees and royalties and assume all costs incident to the use in the performance of the Work or the incorporation in the Work of any invention, design, process, product, or device which is the subject of patent rights or copyrights held by others. If a particular invention, design, process, product, or device is specified in the Contract Documents for use in the performance of the Work and if to the actual knowledge of OWNER or ENGINEER its use is subject to patent rights or copyrights calling for the payment of any license fee or royalty to others, the existence of such rights shall be disclosed by OWNER in the Contract Documents. To the

fullest extent permitted by Laws and Regulations, CONTRACTOR shall indemnify and hold harmless OWNER, ENGINEER, ENGINEER's Consultants, and the officers, directors, partners, employees or agents, and other consultants of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device not specified in the Contract Documents.

6.08 *Permits* 6.08 *Permits*

A. Unless otherwise provided in the Supplementary Conditions, CONTRACTOR shall obtain and pay for all construction permits and licenses. OWNER shall assist CONTRACTOR, when necessary, in obtaining such permits and licenses. CONTRACTOR shall pay all governmental charges and inspection fees necessary for the prosecution of the Work which are applicable at the time of opening of Bids, or, if there are no Bids, on the Effective Date of the Agreement. CONTRACTOR shall pay all charges of utility owners for connections to the Work, and OWNER shall pay all charges of such utility owners for capital costs related thereto, such as plant investment fees.

6.09 *Laws and Regulations* 6.09 *Laws and Regulations*

A. CONTRACTOR shall give all notices and comply with all Laws and Regulations applicable to the performance of the Work. Except where otherwise expressly required by applicable Laws and Regulations, neither OWNER nor ENGINEER shall be responsible for monitoring CONTRACTOR's compliance with any Laws or Regulations.

B. If CONTRACTOR performs any Work knowing or having reason to know that it is contrary to Laws or Regulations, CONTRACTOR shall bear all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such Work; however, it shall not be CONTRACTOR's primary responsibility to make certain that the Specifications and Drawings are in accordance with Laws and Regulations, but this shall not relieve CONTRACTOR of CONTRACTOR's obligations under paragraph 3.03.

C. Changes in Laws or Regulations not known at the time of opening of Bids (or, on the Effective Date of the Agreement if there were no Bids) having an effect on the

cost or time of performance of the Work may be the subject of an adjustment in Contract Price or Contract Times. If OWNER and CONTRACTOR are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment, a Claim may be made therefor as provided in paragraph 10.05.

6.10 *Taxes* 6.10 *Taxes*

A. CONTRACTOR shall pay all sales, consumer, use, and other similar taxes required to be paid by CONTRACTOR in accordance with the Laws and Regulations of the place of the Project which are applicable during the performance of the Work.

6.11 *Use of Site and Other Areas* 6.11 *Use of Site and Other Areas*

A. *Limitation on Use of Site and Other Areas*

1. CONTRACTOR shall confine construction equipment, the storage of materials and equipment, and the operations of workers to the Site and other areas permitted by Laws and Regulations, and shall not unreasonably encumber the Site and other areas with construction equipment or other materials or equipment. CONTRACTOR shall assume full responsibility for any damage to any such land or area, or to the owner or occupant thereof, or of any adjacent land or areas resulting from the performance of the Work.

2. Should any claim be made by any such owner or occupant because of the performance of the Work, CONTRACTOR shall promptly settle with such other party by negotiation or otherwise resolve the claim by arbitration or other dispute resolution proceeding or at law.

3. To the fullest extent permitted by Laws and Regulations, CONTRACTOR shall indemnify and hold harmless OWNER, ENGINEER, ENGINEER's Consultant, and the officers, directors, partners, employees, agents, and other consultants of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any claim or action, legal or equitable, brought by any such owner or occupant against OWNER, ENGINEER, or any other party indemnified hereunder to the extent caused by or based upon CONTRACTOR's performance of the Work.

B. *Removal of Debris During Performance of the Work:* During the progress of the Work CONTRACTOR shall keep the Site and other areas free from accumulations of waste materials, rubbish, and other debris. Removal and disposal of such waste materials, rubbish, and other debris shall conform to applicable Laws and Regulations.

C. *Cleaning:* Prior to Substantial Completion of the Work CONTRACTOR shall clean the Site and make it ready for utilization by OWNER. At the completion of the Work CONTRACTOR shall remove from the Site all tools, appliances, construction equipment and machinery, and surplus materials and shall restore to original condition all property not designated for alteration by the Contract Documents.

D. *Loading Structures:* CONTRACTOR shall not load nor permit any part of any structure to be loaded in any manner that will endanger the structure, nor shall CONTRACTOR subject any part of the Work or adjacent property to stresses or pressures that will endanger it.

6.12 *Record Documents* 6.12 *Record Documents*

A. CONTRACTOR shall maintain in a safe place at the Site one record copy of all Drawings, Specifications, Addenda, Written Amendments, Change Orders, Work Change Directives, Field Orders, and written interpretations and clarifications in good order and annotated to show changes made during construction. These record documents together with all approved Samples and a counterpart of all approved Shop Drawings will be available to ENGINEER for reference. Upon completion of the Work, these record documents, Samples, and Shop Drawings will be delivered to ENGINEER for OWNER.

6.13 *Safety and Protection* 6.13 *Safety and Protection*

A. CONTRACTOR shall be solely responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the Work. CONTRACTOR shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury or loss to:

1. all persons on the Site or who may be affected by the Work;
2. all the Work and materials and equipment to be incorporated therein, whether in storage on or off the Site; and
3. other property at the Site or adjacent thereto, including trees, shrubs, lawns, walks, pave-

ments, roadways, structures, utilities, and Underground Facilities not designated for removal, relocation, or replacement in the course of construction.

B. CONTRACTOR shall comply with all applicable Laws and Regulations relating to the safety of persons or property, or to the protection of persons or property from damage, injury, or loss; and shall erect and maintain all necessary safeguards for such safety and protection. CONTRACTOR shall notify owners of adjacent property and of Underground Facilities and other utility owners when prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation, and replacement of their property. All damage, injury, or loss to any property referred to in paragraph 6.13.A.2 or 6.13.A.3 caused, directly or indirectly, in whole or in part, by CONTRACTOR, any Subcontractor, Supplier, or any other individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, shall be remedied by CONTRACTOR (except damage or loss attributable to the fault of Drawings or Specifications or to the acts or omissions of OWNER or ENGINEER or ENGINEER's Consultant, or anyone employed by any of them, or anyone for whose acts any of them may be liable, and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of CONTRACTOR or any Subcontractor, Supplier, or other individual or entity directly or indirectly employed by any of them). CONTRACTOR's duties and responsibilities for safety and for protection of the Work shall continue until such time as all the Work is completed and ENGINEER has issued a notice to OWNER and CONTRACTOR in accordance with paragraph 14.07.B that the Work is acceptable (except as otherwise expressly provided in connection with Substantial Completion).

6.14 *Safety Representative* 6.14 *Safety Representative*

A. CONTRACTOR shall designate a qualified and experienced safety representative at the Site whose duties and responsibilities shall be the prevention of accidents and the maintaining and supervising of safety precautions and programs.

6.15 *Hazard Communication Programs* 6.15 *Hazard Communication Programs*

A. CONTRACTOR shall be responsible for coordinating any exchange of material safety data sheets or other hazard communication information required to be made available to or exchanged between or among employers at the Site in accordance with Laws or Regulations.

6.16 Emergencies

A. In emergencies affecting the safety or protection of persons or the Work or property at the Site or adjacent thereto, CONTRACTOR is obligated to act to prevent threatened damage, injury, or loss. CONTRACTOR shall give ENGINEER prompt written notice if CONTRACTOR believes that any significant changes in the Work or variations from the Contract Documents have been caused thereby or are required as a result thereof. If ENGINEER determines that a change in the Contract Documents is required because of the action taken by CONTRACTOR in response to such an emergency, a Work Change Directive or Change Order will be issued.

6.17 Shop Drawings and Samples

A. CONTRACTOR shall submit Shop Drawings to ENGINEER for review and approval in accordance with the acceptable schedule of Shop Drawings and Sample submittals. All submittals will be identified as ENGINEER may require and in the number of copies specified in the General Requirements. The data shown on the Shop Drawings will be complete with respect to quantities, dimensions, specified performance and design criteria, materials, and similar data to show ENGINEER the services, materials, and equipment CONTRACTOR proposes to provide and to enable ENGINEER to review the information for the limited purposes required by paragraph 6.17.E.

B. CONTRACTOR shall also submit Samples to ENGINEER for review and approval in accordance with the acceptable schedule of Shop Drawings and Sample submittals. Each Sample will be identified clearly as to material, Supplier, pertinent data such as catalog numbers, and the use for which intended and otherwise as ENGINEER may require to enable ENGINEER to review the submittal for the limited purposes required by paragraph 6.17.E. The numbers of each Sample to be submitted will be as specified in the Specifications.

C. Where a Shop Drawing or Sample is required by the Contract Documents or the schedule of Shop Drawings and Sample submittals acceptable to ENGINEER as required by paragraph 2.07, any related Work performed prior to ENGINEER's review and approval of the pertinent submittal will be at the sole expense and responsibility of CONTRACTOR.

D. Submittal Procedures

1. Before submitting each Shop Drawing or Sample, CONTRACTOR shall have determined and verified:

a. all field measurements, quantities, dimensions, specified performance criteria, installation requirements, materials, catalog numbers, and similar information with respect thereto;

b. all materials with respect to intended use, fabrication, shipping, handling, storage, assembly, and installation pertaining to the performance of the Work;

c. all information relative to means, methods, techniques, sequences, and procedures of construction and safety precautions and programs incident thereto; and

d. CONTRACTOR shall also have reviewed and coordinated each Shop Drawing or Sample with other Shop Drawings and Samples and with the requirements of the Work and the Contract Documents.

2. Each submittal shall bear a stamp or specific written indication that CONTRACTOR has satisfied CONTRACTOR's obligations under the Contract Documents with respect to CONTRACTOR's review and approval of that submittal.

3. At the time of each submittal, CONTRACTOR shall give ENGINEER specific written notice of such variations, if any, that the Shop Drawing or Sample submitted may have from the requirements of the Contract Documents, such notice to be in a written communication separate from the submittal; and, in addition, shall cause a specific notation to be made on each Shop Drawing and Sample submitted to ENGINEER for review and approval of each such variation.

E. ENGINEER's Review

1. ENGINEER will timely review and approve Shop Drawings and Samples in accordance with the schedule of Shop Drawings and Sample submittals acceptable to ENGINEER. ENGINEER's review and approval will be only to determine if the items covered by the submittals will, after installation or incorporation in the Work, conform to the information given in the Contract Documents.

ments and be compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents.

2. ENGINEER's review and approval will not extend to means, methods, techniques, sequences, or procedures of construction (except where a particular means, method, technique, sequence, or procedure of construction is specifically and expressly called for by the Contract Documents) or to safety precautions or programs incident thereto. The review and approval of a separate item as such will not indicate approval of the assembly in which the item functions.

3. ENGINEER's review and approval of Shop Drawings or Samples shall not relieve CONTRACTOR from responsibility for any variation from the requirements of the Contract Documents unless CONTRACTOR has in writing called ENGINEER's attention to each such variation at the time of each submittal as required by paragraph 6.17.D.3 and ENGINEER has given written approval of each such variation by specific written notation thereof incorporated in or accompanying the Shop Drawing or Sample approval; nor will any approval by ENGINEER relieve CONTRACTOR from responsibility for complying with the requirements of paragraph 6.17.D.1.

F. *Resubmittal Procedures*

1. CONTRACTOR shall make corrections required by ENGINEER and shall return the required number of corrected copies of Shop Drawings and submit as required new Samples for review and approval. CONTRACTOR shall direct specific attention in writing to revisions other than the corrections called for by ENGINEER on previous submittals.

6.18 *Continuing the Work* 6.18 *Continuing the Work*

A. CONTRACTOR shall carry on the Work and adhere to the progress schedule during all disputes or disagreements with OWNER. No Work shall be delayed or postponed pending resolution of any disputes or disagreements, except as permitted by paragraph 15.04 or as OWNER and CONTRACTOR may otherwise agree in writing.

6.19 *CONTRACTOR's General Warranty and Guarantee* 6.19 *CONTRACTOR's General Warranty and Guarantee*

A. CONTRACTOR warrants and guarantees to OWNER, ENGINEER, and ENGINEER's Consultants that all Work will be in accordance with the Contract Documents and will not be defective. CONTRACTOR's warranty and guarantee hereunder excludes defects or damage caused by:

1. abuse, modification, or improper maintenance or operation by persons other than CONTRACTOR, Subcontractors, Suppliers, or any other individual or entity for whom CONTRACTOR is responsible; or

2. normal wear and tear under normal usage.

B. CONTRACTOR's obligation to perform and complete the Work in accordance with the Contract Documents shall be absolute. None of the following will constitute an acceptance of Work that is not in accordance with the Contract Documents or a release of CONTRACTOR's obligation to perform the Work in accordance with the Contract Documents:

1. observations by ENGINEER;

2. recommendation by ENGINEER or payment by OWNER of any progress or final payment;

3. the issuance of a certificate of Substantial Completion by ENGINEER or any payment related thereto by OWNER;

4. use or occupancy of the Work or any part thereof by OWNER;

5. any acceptance by OWNER or any failure to do so;

6. any review and approval of a Shop Drawing or Sample submittal or the issuance of a notice of acceptability by ENGINEER;

7. any inspection, test, or approval by others; or

8. any correction of defective Work by OWNER.

6.20 *Indemnification* 6.20 *Indemnification*

A. To the fullest extent permitted by Laws and Regulations, CONTRACTOR shall indemnify and hold harmless OWNER, ENGINEER, ENGINEER's Consultants, and the officers, directors, partners, employees, agents, and other consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to the performance of the Work, provided that any such claim, cost, loss, or damage:

1. is attributable to bodily injury, sickness, disease, or death, or to injury to or destruction of tangible property (other than the Work itself), including the loss of use resulting therefrom; and

2. is caused in whole or in part by any negligent act or omission of CONTRACTOR, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work or anyone for whose acts any of them may be liable, regardless of whether or not caused in part by any negligence or omission of an individual or entity indemnified hereunder or whether liability is imposed upon such indemnified party by Laws and Regulations regardless of the negligence of any such individual or entity.

B. In any and all claims against OWNER or ENGINEER or any of their respective consultants, agents, officers, directors, partners, or employees by any employee (or the survivor or personal representative of such employee) of CONTRACTOR, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, the indemnification obligation under paragraph 6.20.A shall not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for CONTRACTOR or any such Subcontractor, Supplier, or other individual or entity under workers' compensation acts, disability benefit acts, or other employee benefit acts.

C. The indemnification obligations of CONTRACTOR under paragraph 6.20.A shall not extend to the liability of ENGINEER and ENGINEER's Consultants or to the officers, directors, partners, employees, agents, and other consultants and subcontractors of each and any of them arising out of:

1. the preparation or approval of, or the failure to prepare or approve, maps, Drawings, opinions, reports, surveys, Change Orders, designs, or Specifications; or

2. giving directions or instructions, or failing to give them, if that is the primary cause of the injury or damage.

ARTICLE 7 - OTHER WORK

7.01 *Related Work at Site* 7.01 *Related Work at Site*

A. OWNER may perform other work related to the Project at the Site by OWNER's employees, or let other direct contracts therefor, or have other work performed by utility owners. If such other work is not noted in the Contract Documents, then:

1. written notice thereof will be given to CONTRACTOR prior to starting any such other work; and

2. if OWNER and CONTRACTOR are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times that should be allowed as a result of such other work, a Claim may be made therefor as provided in paragraph 10.05.

B. CONTRACTOR shall afford each other contractor who is a party to such a direct contract and each utility owner (and OWNER, if OWNER is performing the other work with OWNER's employees) proper and safe access to the Site and a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work and shall properly coordinate the Work with theirs. Unless otherwise provided in the Contract Documents, CONTRACTOR shall do all cutting, fitting, and patching of the Work that may be required to properly connect or otherwise make its several parts come together and properly integrate with such other work. CONTRACTOR shall not endanger any work of others by cutting, excavating, or otherwise altering their work and will only cut or alter their work with the written consent of ENGINEER and the others whose work will be affected. The duties and responsibilities of CONTRACTOR under this paragraph are for the benefit of such utility owners and other contractors to the extent that there are comparable provisions for the benefit of CONTRACTOR in said direct contracts between OWNER and such utility owners and other contractors.

C. If the proper execution or results of any part of CONTRACTOR's Work depends upon work performed by others under this Article 7, CONTRACTOR shall inspect such other work and promptly report to ENGINEER in

writing any delays, defects, or deficiencies in such other work that render it unavailable or unsuitable for the proper execution and results of CONTRACTOR's Work. CONTRACTOR's failure to so report will constitute an acceptance of such other work as fit and proper for integration with CONTRACTOR's Work except for latent defects and deficiencies in such other work.

7.02 Coordination7.02Coordination

A. If OWNER intends to contract with others for the performance of other work on the Project at the Site, the following will be set forth in Supplementary Conditions:

1. the individual or entity who will have authority and responsibility for coordination of the activities among the various contractors will be identified;
2. the specific matters to be covered by such authority and responsibility will be itemized; and
3. the extent of such authority and responsibilities will be provided.

B. Unless otherwise provided in the Supplementary Conditions, OWNER shall have sole authority and responsibility for such coordination.

ARTICLE 8 - OWNER'S RESPONSIBILITIES

8.01 Communications to Contractor8.01 Communications to Contractor

A. Except as otherwise provided in these General Conditions, OWNER shall issue all communications to CONTRACTOR through ENGINEER.

8.02 Replacement of ENGINEER8.02 Replacement of ENGINEER

A. In case of termination of the employment of ENGINEER, OWNER shall appoint an engineer to whom CONTRACTOR makes no reasonable objection, whose status under the Contract Documents shall be that of the former ENGINEER.

8.03 Furnish Data8.03 Furnish Data

A. OWNER shall promptly furnish the data required of OWNER under the Contract Documents.

8.04 Pay Promptly When Due8.04 Pay Promptly When Due

A. OWNER shall make payments to CONTRACTOR promptly when they are due as provided in paragraphs 14.02.C and 14.07.C.

8.05 Lands and Easements; Reports and Tests8.05 Lands and Easements; Reports and Tests

A. OWNER's duties in respect of providing lands and easements and providing engineering surveys to establish reference points are set forth in paragraphs 4.01 and 4.05. Paragraph 4.02 refers to OWNER's identifying and making available to CONTRACTOR copies of reports of explorations and tests of subsurface conditions and drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the Site that have been utilized by ENGINEER in preparing the Contract Documents.

8.06 Insurance8.06 Insurance

A. OWNER's responsibilities, if any, in respect to purchasing and maintaining liability and property insurance are set forth in Article 5.

8.07 Change Orders8.07 Change Orders

A. OWNER is obligated to execute Change Orders as indicated in paragraph 10.03.

8.08 Inspections, Tests, and Approvals8.08 Inspections, Tests, and Approvals

A. OWNER's responsibility in respect to certain inspections, tests, and approvals is set forth in paragraph 13.03.B.

8.09 Limitations on OWNER's Responsibilities8.09 Limitations on OWNER's Responsibilities

A. The OWNER shall not supervise, direct, or have control or authority over, nor be responsible for, CONTRACTOR's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of CONTRACTOR to comply with Laws and Regulations applicable to the performance of the Work. OWNER will not be responsible for CONTRACTOR's failure to perform the Work in accordance with the Contract Documents.

8.10 *Undisclosed Hazardous Environmental Condition*
8.10 *Undisclosed Hazardous Environmental Condition*

A. OWNER's responsibility in respect to an undisclosed Hazardous Environmental Condition is set forth in paragraph 4.06.

8.11 *Evidence of Financial Arrangements*
8.11 *Evidence of Financial Arrangements*

A. If and to the extent OWNER has agreed to furnish CONTRACTOR reasonable evidence that financial arrangements have been made to satisfy OWNER's obligations under the Contract Documents, OWNER's responsibility in respect thereof will be as set forth in the Supplementary Conditions.

ARTICLE 9 - ENGINEER'S STATUS DURING CONSTRUCTION

9.01 *OWNER'S Representative*
9.01 *OWNER'S Representative*

A. ENGINEER will be OWNER's representative during the construction period. The duties and responsibilities and the limitations of authority of ENGINEER as OWNER's representative during construction are set forth in the Contract Documents and will not be changed without written consent of OWNER and ENGINEER.

9.02 *Visits to Site*
9.02 *Visits to Site*

A. ENGINEER will make visits to the Site at intervals appropriate to the various stages of construction as ENGINEER deems necessary in order to observe as an experienced and qualified design professional the progress that has been made and the quality of the various aspects of CONTRACTOR's executed Work. Based on information obtained during such visits and observations, ENGINEER, for the benefit of OWNER, will determine, in general, if the Work is proceeding in accordance with the Contract Documents. ENGINEER will not be required to make exhaustive or continuous inspections on the Site to check the quality or quantity of the Work. ENGINEER's efforts will be directed toward providing for OWNER a greater degree of confidence that the completed Work will conform generally to the Contract Documents. On the basis of such visits and observations, ENGINEER will keep OWNER informed of the progress of the Work and will endeavor to guard OWNER against defective Work.

B. ENGINEER's visits and observations are subject to all the limitations on ENGINEER's authority and responsibility set forth in paragraph 9.10, and particularly, but without limitation, during or as a result of ENGINEER's visits or observations of CONTRACTOR's Work ENGINEER will not supervise, direct, control, or have authority over or be responsible for CONTRACTOR's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of CONTRACTOR to comply with Laws and Regulations applicable to the performance of the Work.

9.03 *Project Representative*
9.03 *Project Representative*

A. If OWNER and ENGINEER agree, ENGINEER will furnish a Resident Project Representative to assist ENGINEER in providing more extensive observation of the Work. The responsibilities and authority and limitations thereon of any such Resident Project Representative and assistants will be as provided in paragraph 9.10 and in the Supplementary Conditions. If OWNER designates another representative or agent to represent OWNER at the Site who is not ENGINEER's Consultant, agent or employee, the responsibilities and authority and limitations thereon of such other individual or entity will be as provided in the Supplementary Conditions.

9.04 *Clarifications and Interpretations*
9.04 *Clarifications and Interpretations*

A. ENGINEER will issue with reasonable promptness such written clarifications or interpretations of the requirements of the Contract Documents as ENGINEER may determine necessary, which shall be consistent with the intent of and reasonably inferable from the Contract Documents. Such written clarifications and interpretations will be binding on OWNER and CONTRACTOR. If OWNER and CONTRACTOR are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times, or both, that should be allowed as a result of a written clarification or interpretation, a Claim may be made therefor as provided in paragraph 10.05.

9.05 *Authorized Variations in Work*
9.05 *Authorized Variations in Work*

A. ENGINEER may authorize minor variations in the Work from the requirements of the Contract Documents which do not involve an adjustment in the Contract Price or the Contract Times and are compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. These may be

accomplished by a Field Order and will be binding on OWNER and also on CONTRACTOR, who shall perform the Work involved promptly. If OWNER and CONTRACTOR are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times, or both, as a result of a Field Order, a Claim may be made therefor as provided in paragraph 10.05.

9.06 *Rejecting Defective Work* *Rejecting Defective Work*

A. ENGINEER will have authority to disapprove or reject Work which ENGINEER believes to be defective, or that ENGINEER believes will not produce a completed Project that conforms to the Contract Documents or that will prejudice the integrity of the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. ENGINEER will also have authority to require special inspection or testing of the Work as provided in paragraph 13.04, whether or not the Work is fabricated, installed, or completed.

9.07 *Shop Drawings, Change Orders and Payments* *Shop Drawings, Change Orders and Payments*

A. In connection with ENGINEER's authority as to Shop Drawings and Samples, see paragraph 6.17.

B. In connection with ENGINEER's authority as to Change Orders, see Articles 10, 11, and 12.

C. In connection with ENGINEER's authority as to Applications for Payment, see Article 14.

9.08 *Determinations for Unit Price Work* *Determinations for Unit Price Work*

A. ENGINEER will determine the actual quantities and classifications of Unit Price Work performed by CONTRACTOR. ENGINEER will review with CONTRACTOR the ENGINEER's preliminary determinations on such matters before rendering a written decision thereon (by recommendation of an Application for Payment or otherwise). ENGINEER's written decision thereon will be final and binding (except as modified by ENGINEER to reflect changed factual conditions or more accurate data) upon OWNER and CONTRACTOR, subject to the provisions of paragraph 10.05.

9.09 *Decisions on Requirements of Contract Documents and Acceptability of Work* *Decisions on Requirements of Contract Documents and Acceptability of Work*

A. ENGINEER will be the initial interpreter of the requirements of the Contract Documents and judge of the acceptability of the Work thereunder. Claims, disputes and other matters relating to the acceptability of the Work, the quantities and classifications of Unit Price Work, the interpretation of the requirements of the Contract Documents pertaining to the performance of the Work, and Claims seeking changes in the Contract Price or Contract Times will be referred initially to ENGINEER in writing, in accordance with the provisions of paragraph 10.05, with a request for a formal decision.

B. When functioning as interpreter and judge under this paragraph 9.09, ENGINEER will not show partiality to OWNER or CONTRACTOR and will not be liable in connection with any interpretation or decision rendered in good faith in such capacity. The rendering of a decision by ENGINEER pursuant to this paragraph 9.09 with respect to any such Claim, dispute, or other matter (except any which have been waived by the making or acceptance of final payment as provided in paragraph 14.07) will be a condition precedent to any exercise by OWNER or CONTRACTOR of such rights or remedies as either may otherwise have under the Contract Documents or by Laws or Regulations in respect of any such Claim, dispute, or other matter.

9.10 *Limitations on ENGINEER's Authority and Responsibilities* *Limitations on ENGINEER's Authority and Responsibilities*

A. Neither ENGINEER's authority or responsibility under this Article 9 or under any other provision of the Contract Documents nor any decision made by ENGINEER in good faith either to exercise or not exercise such authority or responsibility or the undertaking, exercise, or performance of any authority or responsibility by ENGINEER shall create, impose, or give rise to any duty in contract, tort, or otherwise owed by ENGINEER to CONTRACTOR, any Subcontractor, any Supplier, any other individual or entity, or to any surety for or employee or agent of any of them.

B. ENGINEER will not supervise, direct, control, or have authority over or be responsible for CONTRACTOR's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of CONTRACTOR to comply with Laws and Regulations applicable to the performance of the Work. ENGINEER will not be responsible

for CONTRACTOR's failure to perform the Work in accordance with the Contract Documents.

C. ENGINEER will not be responsible for the acts or omissions of CONTRACTOR or of any Subcontractor, any Supplier, or of any other individual or entity performing any of the Work.

D. ENGINEER's review of the final Application for Payment and accompanying documentation and all maintenance and operating instructions, schedules, guarantees, Bonds, certificates of inspection, tests and approvals, and other documentation required to be delivered by paragraph 14.07.A will only be to determine generally that their content complies with the requirements of, and in the case of certificates of inspections, tests, and approvals that the results certified indicate compliance with, the Contract Documents.

E. The limitations upon authority and responsibility set forth in this paragraph 9.10 shall also apply to ENGINEER's Consultants, Resident Project Representative, and assistants.

ARTICLE 10 - CHANGES IN THE WORK; CLAIMS

10.01 *Authorized Changes in the Work*

A. Without invalidating the Agreement and without notice to any surety, OWNER may, at any time or from time to time, order additions, deletions, or revisions in the Work by a Written Amendment, a Change Order, or a Work Change Directive. Upon receipt of any such document, CONTRACTOR shall promptly proceed with the Work involved which will be performed under the applicable conditions of the Contract Documents (except as otherwise specifically provided).

B. If OWNER and CONTRACTOR are unable to agree on entitlement to, or on the amount or extent, if any, of an adjustment in the Contract Price or Contract Times, or both, that should be allowed as a result of a Work Change Directive, a Claim may be made therefor as provided in paragraph 10.05.

10.02 *Unauthorized Changes in the Work*

A. CONTRACTOR shall not be entitled to an increase in the Contract Price or an extension of the Contract Times with respect to any work performed that is not required by the Contract Documents as amended, modified, or supplemented as provided in paragraph 3.04,

except in the case of an emergency as provided in paragraph 6.16 or in the case of uncovering Work as provided in paragraph 13.04.B.

10.03 *Execution of Change Orders*

A. OWNER and CONTRACTOR shall execute appropriate Change Orders recommended by ENGINEER (or Written Amendments) covering:

1. changes in the Work which are: (i) ordered by OWNER pursuant to paragraph 10.01.A, (ii) required because of acceptance of defective Work under paragraph 13.08.A or OWNER's correction of defective Work under paragraph 13.09, or (iii) agreed to by the parties;

2. changes in the Contract Price or Contract Times which are agreed to by the parties, including any undisputed sum or amount of time for Work actually performed in accordance with a Work Change Directive; and

3. changes in the Contract Price or Contract Times which embody the substance of any written decision rendered by ENGINEER pursuant to paragraph 10.05; provided that, in lieu of executing any such Change Order, an appeal may be taken from any such decision in accordance with the provisions of the Contract Documents and applicable Laws and Regulations, but during any such appeal, CONTRACTOR shall carry on the Work and adhere to the progress schedule as provided in paragraph 6.18.A.

10.04 *Notification to Surety*

A. If notice of any change affecting the general scope of the Work or the provisions of the Contract Documents (including, but not limited to, Contract Price or Contract Times) is required by the provisions of any Bond to be given to a surety, the giving of any such notice will be CONTRACTOR's responsibility. The amount of each applicable Bond will be adjusted to reflect the effect of any such change.

10.05 *Claims and Disputes*

A. *Notice:* Written notice stating the general nature of each Claim, dispute, or other matter shall be delivered by the claimant to ENGINEER and the other party to the Contract promptly (but in no event later than 30 days) after the start of the event giving rise thereto. Notice of the

amount or extent of the Claim, dispute, or other matter with supporting data shall be delivered to the ENGINEER and the other party to the Contract within 60 days after the start of such event (unless ENGINEER allows additional time for claimant to submit additional or more accurate data in support of such Claim, dispute, or other matter). A Claim for an adjustment in Contract Price shall be prepared in accordance with the provisions of paragraph 12.01.B. A Claim for an adjustment in Contract Time shall be prepared in accordance with the provisions of paragraph 12.02.B. Each Claim shall be accompanied by claimant's written statement that the adjustment claimed is the entire adjustment to which the claimant believes it is entitled as a result of said event. The opposing party shall submit any response to ENGINEER and the claimant within 30 days after receipt of the claimant's last submittal (unless ENGINEER allows additional time).

B. *ENGINEER's Decision:* ENGINEER will render a formal decision in writing within 30 days after receipt of the last submittal of the claimant or the last submittal of the opposing party, if any. ENGINEER's written decision on such Claim, dispute, or other matter will be final and binding upon OWNER and CONTRACTOR unless:

1. an appeal from ENGINEER's decision is taken within the time limits and in accordance with the dispute resolution procedures set forth in Article 16; or

2. if no such dispute resolution procedures have been set forth in Article 16, a written notice of intention to appeal from ENGINEER's written decision is delivered by OWNER or CONTRACTOR to the other and to ENGINEER within 30 days after the date of such decision, and a formal proceeding is instituted by the appealing party in a forum of competent jurisdiction within 60 days after the date of such decision or within 60 days after Substantial Completion, whichever is later (unless otherwise agreed in writing by OWNER and CONTRACTOR), to exercise such rights or remedies as the appealing party may have with respect to such Claim, dispute, or other matter in accordance with applicable Laws and Regulations.

C. If ENGINEER does not render a formal decision in writing within the time stated in paragraph 10.05.B, a decision denying the Claim in its entirety shall be deemed to have been issued 31 days after receipt of the last submittal of the claimant or the last submittal of the opposing party, if any.

D. No Claim for an adjustment in Contract Price or Contract Times (or Milestones) will be valid if not submitted in accordance with this paragraph 10.05.

ARTICLE 11 - COST OF THE WORK; CASH ALLOWANCES; UNIT PRICE WORK

11.01 *Cost of the Work* 11.01 *Cost of the Work*

A. *Costs Included:* The term Cost of the Work means the sum of all costs necessarily incurred and paid by CONTRACTOR in the proper performance of the Work. When the value of any Work covered by a Change Order or when a Claim for an adjustment in Contract Price is determined on the basis of Cost of the Work, the costs to be reimbursed to CONTRACTOR will be only those additional or incremental costs required because of the change in the Work or because of the event giving rise to the Claim. Except as otherwise may be agreed to in writing by OWNER, such costs shall be in amounts no higher than those prevailing in the locality of the Project, shall include only the following items, and shall not include any of the costs itemized in paragraph 11.01.B.

1. Payroll costs for employees in the direct employ of CONTRACTOR in the performance of the Work under schedules of job classifications agreed upon by OWNER and CONTRACTOR. Such employees shall include without limitation superintendents, foremen, and other personnel employed full time at the Site. Payroll costs for employees not employed full time on the Work shall be apportioned on the basis of their time spent on the Work. Payroll costs shall include, but not be limited to, salaries and wages plus the cost of fringe benefits, which shall include social security contributions, unemployment, excise, and payroll taxes, workers' compensation, health and retirement benefits, bonuses, sick leave, vacation and holiday pay applicable thereto. The expenses of performing Work outside of regular working hours, on Saturday, Sunday, or legal holidays, shall be included in the above to the extent authorized by OWNER.

2. Cost of all materials and equipment furnished and incorporated in the Work, including costs of transportation and storage thereof, and Suppliers' field services required in connection therewith. All cash discounts shall accrue to CONTRACTOR unless OWNER deposits funds with CONTRACTOR with which to make payments, in which case the cash discounts shall accrue to OWNER. All trade discounts, rebates and refunds and returns from sale of surplus materials and equipment shall accrue to OWNER, and CONTRACTOR shall make provisions so that they may be obtained.

3. Payments made by CONTRACTOR to Subcontractors for Work performed by Subcontractors. If required by OWNER, CONTRACTOR shall obtain competitive bids from subcontractors acceptable to OWNER and CONTRACTOR and shall deliver such bids to OWNER, who will then determine, with the advice of ENGINEER, which bids, if any, will be acceptable. If any subcontract provides that the Subcontractor is to be paid on the basis of Cost of the Work plus a fee, the Subcontractor's Cost of the Work and fee shall be determined in the same manner as CONTRACTOR's Cost of the Work and fee as provided in this paragraph 11.01.

4. Costs of special consultants (including but not limited to engineers, architects, testing laboratories, surveyors, attorneys, and accountants) employed for services specifically related to the Work.

5. Supplemental costs including the following:

a. The proportion of necessary transportation, travel, and subsistence expenses of CONTRACTOR's employees incurred in discharge of duties connected with the Work.

b. Cost, including transportation and maintenance, of all materials, supplies, equipment, machinery, appliances, office, and temporary facilities at the Site, and hand tools not owned by the workers, which are consumed in the performance of the Work, and cost, less market value, of such items used but not consumed which remain the property of CONTRACTOR.

c. Rentals of all construction equipment and machinery, and the parts thereof whether rented from CONTRACTOR or others in accordance with

rental agreements approved by OWNER with the advice of ENGINEER, and the costs of transportation, loading, unloading, assembly, dismantling, and removal thereof. All such costs shall be in accordance with the terms of said rental agreements. The rental of any such equipment, machinery, or parts shall cease when the use thereof is no longer necessary for the Work.

d. Sales, consumer, use, and other similar taxes related to the Work, and for which CONTRACTOR is liable, imposed by Laws and Regulations.

e. Deposits lost for causes other than negligence of CONTRACTOR, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, and royalty payments and fees for permits and licenses.

f. Losses and damages (and related expenses) caused by damage to the Work, not compensated by insurance or otherwise, sustained by CONTRACTOR in connection with the performance of the Work (except losses and damages within the deductible amounts of property insurance established in accordance with paragraph 5.06.D), provided such losses and damages have resulted from causes other than the negligence of CONTRACTOR, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable. Such losses shall include settlements made with the written consent and approval of OWNER. No such losses, damages, and expenses shall be included in the Cost of the Work for the purpose of determining CONTRACTOR's fee.

g. The cost of utilities, fuel, and sanitary facilities at the Site.

h. Minor expenses such as telegrams, long distance telephone calls, telephone service at the Site, expressage, and similar petty cash items in connection with the Work.

i. When the Cost of the Work is used to determine the value of a Change Order or of a Claim, the cost of premiums for additional Bonds and insurance required because of the changes in the Work or caused by the event giving rise to the Claim.

j. When all the Work is performed on the basis of cost-plus, the costs of premiums for all Bonds and insurance CONTRACTOR is required by the Contract Documents to purchase and maintain.

B. *Costs Excluded:* The term Cost of the Work shall not include any of the following items:

1. Payroll costs and other compensation of CONTRACTOR's officers, executives, principals (of partnerships and sole proprietorships), general managers, engineers, architects, estimators, attorneys, auditors, accountants, purchasing and contracting agents, expeditors, timekeepers, clerks, and other personnel employed by CONTRACTOR, whether at the Site or in CONTRACTOR's principal or branch office for general administration of the Work and not specifically included in the agreed upon schedule of job classifications referred to in paragraph 11.01.A.1 or specifically covered by paragraph 11.01.A.4, all of which are to be considered administrative costs covered by the CONTRACTOR's fee.

2. Expenses of CONTRACTOR's principal and branch offices other than CONTRACTOR's office at the Site.

3. Any part of CONTRACTOR's capital expenses, including interest on CONTRACTOR's capital employed for the Work and charges against CONTRACTOR for delinquent payments.

4. Costs due to the negligence of CONTRACTOR, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, including but not limited to, the correction of defective Work, disposal of materials or equipment wrongly supplied, and making good any damage to property.

5. Other overhead or general expense costs of any kind and the costs of any item not specifically and expressly included in paragraphs 11.01.A and 11.01.B.

C. *CONTRACTOR's Fee:* When all the Work is performed on the basis of cost-plus, CONTRACTOR's fee shall be determined as set forth in the Agreement. When the value of any Work covered by a Change Order or when a Claim for an adjustment in Contract Price is determined on the basis of Cost of the Work, CONTRACTOR's fee shall be determined as set forth in paragraph 12.01.C.

D. *Documentation:* Whenever the Cost of the Work for any purpose is to be determined pursuant to paragraphs 11.01.A and 11.01.B, CONTRACTOR will establish and maintain records thereof in accordance with generally accepted accounting practices and submit in a form acceptable to ENGINEER an itemized cost breakdown together with supporting data.

11.02 *Cash Allowances* 11.02 *Cash Allowances*

A. It is understood that CONTRACTOR has included in the Contract Price all allowances so named in the Contract Documents and shall cause the Work so covered to be performed for such sums as may be acceptable to OWNER and ENGINEER. CONTRACTOR agrees that:

1. the allowances include the cost to CONTRACTOR (less any applicable trade discounts) of materials and equipment required by the allowances to be delivered at the Site, and all applicable taxes; and

2. CONTRACTOR's costs for unloading and handling on the Site, labor, installation costs, overhead, profit, and other expenses contemplated for the allowances have been included in the Contract Price and not in the allowances, and no demand for additional payment on account of any of the foregoing will be valid.

B. Prior to final payment, an appropriate Change Order will be issued as recommended by ENGINEER to reflect actual amounts due CONTRACTOR on account of Work covered by allowances, and the Contract Price shall be correspondingly adjusted.

11.03 *Unit Price Work* 11.03 *Unit Price Work*

A. Where the Contract Documents provide that all or part of the Work is to be Unit Price Work, initially the Contract Price will be deemed to include for all Unit Price Work an amount equal to the sum of the unit price for each separately identified item of Unit Price Work times the estimated quantity of each item as indicated in the Agreement. The estimated quantities of items of Unit Price Work are not guaranteed and are solely for the purpose of comparison of Bids and determining an initial Contract Price. Determinations of the actual quantities and classifications of Unit Price Work performed by CONTRACTOR will be made by ENGINEER subject to the provisions of paragraph 9.08.

B. Each unit price will be deemed to include an amount considered by CONTRACTOR to be adequate to

cover CONTRACTOR's overhead and profit for each separately identified item.

C. OWNER or CONTRACTOR may make a Claim for an adjustment in the Contract Price in accordance with paragraph 10.05 if:

1. the quantity of any item of Unit Price Work performed by CONTRACTOR differs materially and significantly from the estimated quantity of such item indicated in the Agreement; and
2. there is no corresponding adjustment with respect any other item of Work; and
3. if CONTRACTOR believes that CONTRACTOR is entitled to an increase in Contract Price as a result of having incurred additional expense or OWNER believes that OWNER is entitled to a decrease in Contract Price and the parties are unable to agree as to the amount of any such increase or decrease.

ARTICLE 12 - CHANGE OF CONTRACT PRICE; CHANGE OF CONTRACT TIMES

12.01 *Change of Contract Price* 12.01 *Change of Contract Price*

A. The Contract Price may only be changed by a Change Order or by a Written Amendment. Any Claim for an adjustment in the Contract Price shall be based on written notice submitted by the party making the Claim to the ENGINEER and the other party to the Contract in accordance with the provisions of paragraph 10.05.

B. The value of any Work covered by a Change Order or of any Claim for an adjustment in the Contract Price will be determined as follows:

1. where the Work involved is covered by unit prices contained in the Contract Documents, by application of such unit prices to the quantities of the items involved (subject to the provisions of paragraph 11.03); or
2. where the Work involved is not covered by unit prices contained in the Contract Documents, by a mutually agreed lump sum (which may include an allowance for overhead and profit not necessarily in accordance with paragraph 12.01.C.2); or

3. where the Work involved is not covered by unit prices contained in the Contract Documents and agreement to a lump sum is not reached under paragraph 12.01.B.2, on the basis of the Cost of the Work (determined as provided in paragraph 11.01) plus a CONTRACTOR's fee for overhead and profit (determined as provided in paragraph 12.01.C).

C. *CONTRACTOR's Fee:* The CONTRACTOR's fee for overhead and profit shall be determined as follows:

1. a mutually acceptable fixed fee; or
2. if a fixed fee is not agreed upon, then a fee based on the following percentages of the various portions of the Cost of the Work:
 - a. for costs incurred under paragraphs 11.01.A.1 and 11.01.A.2, the CONTRACTOR's fee shall be 15 percent;
 - b. for costs incurred under paragraph 11.01.A.3, the CONTRACTOR's fee shall be five percent;
 - c. where one or more tiers of subcontracts are on the basis of Cost of the Work plus a fee and no fixed fee is agreed upon, the intent of paragraph 12.01.C.2.a is that the Subcontractor who actually performs the Work, at whatever tier, will be paid a fee of 15 percent of the costs incurred by such Subcontractor under paragraphs 11.01.A.1 and 11.01.A.2 and that any higher tier Subcontractor and CONTRACTOR will each be paid a fee of five percent of the amount paid to the next lower tier Subcontractor;
 - d. no fee shall be payable on the basis of costs itemized under paragraphs 11.01.A.4, 11.01.A.5, and 11.01.B;
 - e. the amount of credit to be allowed by CONTRACTOR to OWNER for any change which results in a net decrease in cost will be the amount of the actual net decrease in cost plus a deduction in CONTRACTOR's fee by an amount equal to five percent of such net decrease; and
 - f. when both additions and credits are involved in any one change, the adjustment in CONTRACTOR's fee shall be computed on the basis of the net change in accordance with paragraphs 12.01.C.2.a through 12.01.C.2.e, inclusive.

12.02 *Change of Contract Times* 12.02 *Change of Contract Times*

A. The Contract Times (or Milestones) may only be changed by a Change Order or by a Written Amendment. Any Claim for an adjustment in the Contract Times (or Milestones) shall be based on written notice submitted by the party making the claim to the ENGINEER and the other party to the Contract in accordance with the provisions of paragraph 10.05.

B. Any adjustment of the Contract Times (or Milestones) covered by a Change Order or of any Claim for an adjustment in the Contract Times (or Milestones) will be determined in accordance with the provisions of this Article 12.

12.03 *Delays Beyond CONTRACTOR's Control* 12.03 *Delays Beyond CONTRACTOR's Control*

A. Where CONTRACTOR is prevented from completing any part of the Work within the Contract Times (or Milestones) due to delay beyond the control of CONTRACTOR, the Contract Times (or Milestones) will be extended in an amount equal to the time lost due to such delay if a Claim is made therefor as provided in paragraph 12.02.A. Delays beyond the control of CONTRACTOR shall include, but not be limited to, acts or neglect by OWNER, acts or neglect of utility owners or other contractors performing other work as contemplated by Article 7, fires, floods, epidemics, abnormal weather conditions, or acts of God.

12.04 *Delays Within CONTRACTOR's Control* 12.04 *Delays Within CONTRACTOR's Control*

A. The Contract Times (or Milestones) will not be extended due to delays within the control of CONTRACTOR. Delays attributable to and within the control of a Subcontractor or Supplier shall be deemed to be delays within the control of CONTRACTOR.

12.05 *Delays Beyond OWNER's and CONTRACTOR's Control* 12.05 *Delays Beyond OWNER's and CONTRACTOR's Control*

A. Where CONTRACTOR is prevented from completing any part of the Work within the Contract Times (or Milestones) due to delay beyond the control of both OWNER and CONTRACTOR, an extension of the Contract Times (or Milestones) in an amount equal to the time lost due to such delay shall be CONTRACTOR's sole and exclusive remedy for such delay.

12.06 *Delay Damages* 12.06 *Delay Damages*

A. In no event shall OWNER or ENGINEER be liable to CONTRACTOR, any Subcontractor, any Supplier, or any other person or organization, or to any surety for or employee or agent of any of them, for damages arising out of or resulting from:

1. delays caused by or within the control of CONTRACTOR; or

2. delays beyond the control of both OWNER and CONTRACTOR including but not limited to fires, floods, epidemics, abnormal weather conditions, acts of God, or acts or neglect by utility owners or other contractors performing other work as contemplated by Article 7.

B. Nothing in this paragraph 12.06 bars a change in Contract Price pursuant to this Article 12 to compensate CONTRACTOR due to delay, interference, or disruption directly attributable to actions or inactions of OWNER or anyone for whom OWNER is responsible.

ARTICLE 13 - TESTS AND INSPECTIONS;
CORRECTION, REMOVAL OR ACCEPTANCE OF
DEFECTIVE WORK

13.01 *Notice of Defects* 13.01 *Notice of Defects*

A. Prompt notice of all defective Work of which OWNER or ENGINEER has actual knowledge will be given to CONTRACTOR. All defective Work may be rejected, corrected, or accepted as provided in this Article 13.

13.02 *Access to Work* 13.02 *Access to Work*

A. OWNER, ENGINEER, ENGINEER's Consultants, other representatives and personnel of OWNER, independent testing laboratories, and governmental agencies with jurisdictional interests will have access to the Site and the Work at reasonable times for their observation, inspecting, and testing. CONTRACTOR shall provide them proper and safe conditions for such access and advise them of CONTRACTOR's Site safety procedures and programs so that they may comply therewith as applicable.

13.03 *Tests and Inspections* 13.03 *Tests and Inspections*

A. CONTRACTOR shall give ENGINEER timely notice of readiness of the Work for all required inspections,

tests, or approvals and shall cooperate with inspection and testing personnel to facilitate required inspections or tests.

B. OWNER shall employ and pay for the services of an independent testing laboratory to perform all inspections, tests, or approvals required by the Contract Documents except:

1. for inspections, tests, or approvals covered by paragraphs 13.03.C and 13.03.D below;
2. that costs incurred in connection with tests or inspections conducted pursuant to paragraph 13.04.B shall be paid as provided in said paragraph 13.04.B; and
3. as otherwise specifically provided in the Contract Documents.

C. If Laws or Regulations of any public body having jurisdiction require any Work (or part thereof) specifically to be inspected, tested, or approved by an employee or other representative of such public body, CONTRACTOR shall assume full responsibility for arranging and obtaining such inspections, tests, or approvals, pay all costs in connection therewith, and furnish ENGINEER the required certificates of inspection or approval.

D. CONTRACTOR shall be responsible for arranging and obtaining and shall pay all costs in connection with any inspections, tests, or approvals required for OWNER's and ENGINEER's acceptance of materials or equipment to be incorporated in the Work; or acceptance of materials, mix designs, or equipment submitted for approval prior to CONTRACTOR's purchase thereof for incorporation in the Work. Such inspections, tests, or approvals shall be performed by organizations acceptable to OWNER and ENGINEER.

E. If any Work (or the work of others) that is to be inspected, tested, or approved is covered by CONTRACTOR without written concurrence of ENGINEER, it must, if requested by ENGINEER, be uncovered for observation.

F. Uncovering Work as provided in paragraph 13.03.E shall be at CONTRACTOR's expense unless CONTRACTOR has given ENGINEER timely notice of CONTRACTOR's intention to cover the same and ENGINEER has not acted with reasonable promptness in response to such notice.

13.04 Uncovering Work 13.04 Uncovering Work

A. If any Work is covered contrary to the written request of ENGINEER, it must, if requested by ENGINEER,

be uncovered for ENGINEER's observation and replaced at CONTRACTOR's expense.

B. If ENGINEER considers it necessary or advisable that covered Work be observed by ENGINEER or inspected or tested by others, CONTRACTOR, at ENGINEER's request, shall uncover, expose, or otherwise make available for observation, inspection, or testing as ENGINEER may require, that portion of the Work in question, furnishing all necessary labor, material, and equipment. If it is found that such Work is defective, CONTRACTOR shall pay all Claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such uncovering, exposure, observation, inspection, and testing, and of satisfactory replacement or reconstruction (including but not limited to all costs of repair or replacement of work of others); and OWNER shall be entitled to an appropriate decrease in the Contract Price. If the parties are unable to agree as to the amount thereof, OWNER may make a Claim therefor as provided in paragraph 10.05. If, however, such Work is not found to be defective, CONTRACTOR shall be allowed an increase in the Contract Price or an extension of the Contract Times (or Milestones), or both, directly attributable to such uncovering, exposure, observation, inspection, testing, replacement, and reconstruction. If the parties are unable to agree as to the amount or extent thereof, CONTRACTOR may make a Claim therefor as provided in paragraph 10.05.

13.05 OWNER May Stop the Work 13.05 OWNER May Stop the Work

A. If the Work is defective, or CONTRACTOR fails to supply sufficient skilled workers or suitable materials or equipment, or fails to perform the Work in such a way that the completed Work will conform to the Contract Documents, OWNER may order CONTRACTOR to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, this right of OWNER to stop the Work shall not give rise to any duty on the part of OWNER to exercise this right for the benefit of CONTRACTOR, any Subcontractor, any Supplier, any other individual or entity, or any surety for, or employee or agent of any of them.

13.06 *Correction or Removal of Defective Work* 13.06
Correction or Removal of Defective Work

A. CONTRACTOR shall correct all defective Work, whether or not fabricated, installed, or completed, or, if the Work has been rejected by ENGINEER, remove it from the Project and replace it with Work that is not defective. CONTRACTOR shall pay all Claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or removal (including but not limited to all costs of repair or replacement of work of others).

13.07 *Correction Period* 13.07 *Correction Period*

A. If within one year after the date of Substantial Completion or such longer period of time as may be prescribed by Laws or Regulations or by the terms of any applicable special guarantee required by the Contract Documents or by any specific provision of the Contract Documents, any Work is found to be defective, or if the repair of any damages to the land or areas made available for CONTRACTOR's use by OWNER or permitted by Laws and Regulations as contemplated in paragraph 6.11.A is found to be defective, CONTRACTOR shall promptly, without cost to OWNER and in accordance with OWNER's written instructions: (i) repair such defective land or areas, or (ii) correct such defective Work or, if the defective Work has been rejected by OWNER, remove it from the Project and replace it with Work that is not defective, and (iii) satisfactorily correct or repair or remove and replace any damage to other Work, to the work of others or other land or areas resulting therefrom. If CONTRACTOR does not promptly comply with the terms of such instructions, or in an emergency where delay would cause serious risk of loss or damage, OWNER may have the defective Work corrected or repaired or may have the rejected Work removed and replaced, and all Claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or repair or such removal and replacement (including but not limited to all costs of repair or replacement of work of others) will be paid by CONTRACTOR.

B. In special circumstances where a particular item of equipment is placed in continuous service before Substantial Completion of all the Work, the correction period for that item may start to run from an earlier date if so provided in the Specifications or by Written Amendment.

C. Where defective Work (and damage to other Work resulting therefrom) has been corrected or removed and replaced under this paragraph 13.07, the correction period hereunder with respect to such Work will be extended for an additional period of one year after such correction or removal and replacement has been satisfactorily completed.

D. CONTRACTOR's obligations under this paragraph 13.07 are in addition to any other obligation or warranty. The provisions of this paragraph 13.07 shall not be construed as a substitute for or a waiver of the provisions of any applicable statute of limitation or repose.

13.08 *Acceptance of Defective Work* 13.08 *Acceptance of Defective Work*

A. If, instead of requiring correction or removal and replacement of defective Work, OWNER (and, prior to ENGINEER's recommendation of final payment, ENGINEER) prefers to accept it, OWNER may do so. CONTRACTOR shall pay all Claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) attributable to OWNER's evaluation of and determination to accept such defective Work (such costs to be approved by ENGINEER as to reasonableness) and the diminished value of the Work to the extent not otherwise paid by CONTRACTOR pursuant to this sentence. If any such acceptance occurs prior to ENGINEER's recommendation of final payment, a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work, and OWNER shall be entitled to an appropriate decrease in the Contract Price, reflecting the diminished value of Work so accepted. If the parties are unable to agree as to the amount thereof, OWNER may make a Claim therefor as provided in paragraph 10.05. If the acceptance occurs after such recommendation, an appropriate amount will be paid by CONTRACTOR to OWNER.

13.09 *OWNER May Correct Defective Work* 13.09
OWNER May Correct Defective Work

A. If CONTRACTOR fails within a reasonable time after written notice from ENGINEER to correct defective Work or to remove and replace rejected Work as required by ENGINEER in accordance with paragraph 13.06.A, or if CONTRACTOR fails to perform the Work in accordance with the Contract Documents, or if CONTRACTOR fails to comply with any other provision of the Contract Documents, OWNER may, after seven days written notice to CONTRACTOR, correct and remedy any such deficiency.

B. In exercising the rights and remedies under this paragraph, OWNER shall proceed expeditiously. In connection with such corrective and remedial action, OWNER may exclude CONTRACTOR from all or part of the Site, take possession of all or part of the Work and suspend CONTRACTOR's services related thereto, take possession of CONTRACTOR's tools, appliances, construction equipment and machinery at the Site, and incorporate in the Work all materials and equipment stored at the Site or for which OWNER has paid CONTRACTOR but which are stored elsewhere. CONTRACTOR shall allow OWNER, OWNER's representatives, agents and employees, OWNER's other contractors, and ENGINEER and ENGINEER's Consultants access to the Site to enable OWNER to exercise the rights and remedies under this paragraph.

C. All Claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) incurred or sustained by OWNER in exercising the rights and remedies under this paragraph 13.09 will be charged against CONTRACTOR, and a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work; and OWNER shall be entitled to an appropriate decrease in the Contract Price. If the parties are unable to agree as to the amount of the adjustment, OWNER may make a Claim therefor as provided in paragraph 10.05. Such claims, costs, losses and damages will include but not be limited to all costs of repair, or replacement of work of others destroyed or damaged by correction, removal, or replacement of CONTRACTOR's defective Work.

D. CONTRACTOR shall not be allowed an extension of the Contract Times (or Milestones) because of any delay in the performance of the Work attributable to the exercise by OWNER of OWNER's rights and remedies under this paragraph 13.09.

ARTICLE 14 - PAYMENTS TO CONTRACTOR AND COMPLETION

14.01 *Schedule of Values* 14.01 *Schedule of Values*

A. The schedule of values established as provided in paragraph 2.07.A will serve as the basis for progress payments and will be incorporated into a form of Application for Payment acceptable to ENGINEER. Progress payments on account of Unit Price Work will be based on the number of units completed.

14.02 *Progress Payments* 14.02 *Progress Payments*

A. *Applications for Payments*

1. At least 20 days before the date established for each progress payment (but not more often than once a month), CONTRACTOR shall submit to ENGINEER for review an Application for Payment filled out and signed by CONTRACTOR covering the Work completed as of the date of the Application and accompanied by such supporting documentation as is required by the Contract Documents. If payment is requested on the basis of materials and equipment not incorporated in the Work but delivered and suitably stored at the Site or at another location agreed to in writing, the Application for Payment shall also be accompanied by a bill of sale, invoice, or other documentation warranting that OWNER has received the materials and equipment free and clear of all Liens and evidence that the materials and equipment are covered by appropriate property insurance or other arrangements to protect OWNER's interest therein, all of which must be satisfactory to OWNER.

2. Beginning with the second Application for Payment, each Application shall include an affidavit of CONTRACTOR stating that all previous progress payments received on account of the Work have been applied on account to discharge CONTRACTOR's legitimate obligations associated with prior Applications for Payment.

3. The amount of retainage with respect to progress payments will be as stipulated in the Agreement.

B. *Review of Applications*

1. ENGINEER will, within 10 days after receipt of each Application for Payment, either indicate in writing a recommendation of payment and present the Application to OWNER or return the Application to CONTRACTOR indicating in writing ENGINEER's reasons for refusing to recommend payment. In the latter case, CONTRACTOR may make the necessary corrections and resubmit the Application.

2. ENGINEER's recommendation of any payment requested in an Application for Payment will constitute a representation by ENGINEER to OWNER, based on ENGINEER's observations on the Site of the executed Work as an experienced and qualified design professional and on ENGINEER's

review of the Application for Payment and the accompanying data and schedules, that to the best of ENGINEER's knowledge, information and belief:

a. the Work has progressed to the point indicated;

b. the quality of the Work is generally in accordance with the Contract Documents (subject to an evaluation of the Work as a functioning whole prior to or upon Substantial Completion, to the results of any subsequent tests called for in the Contract Documents, to a final determination of quantities and classifications for Unit Price Work under paragraph 9.08, and to any other qualifications stated in the recommendation); and

c. the conditions precedent to CONTRACTOR's being entitled to such payment appear to have been fulfilled in so far as it is ENGINEER's responsibility to observe the Work.

3. By recommending any such payment ENGINEER will not thereby be deemed to have represented that: (i) inspections made to check the quality or the quantity of the Work as it has been performed have been exhaustive, extended to every aspect of the Work in progress, or involved detailed inspections of the Work beyond the responsibilities specifically assigned to ENGINEER in the Contract Documents; or (ii) that there may not be other matters or issues between the parties that might entitle CONTRACTOR to be paid additionally by OWNER or entitle OWNER to withhold payment to CONTRACTOR.

4. Neither ENGINEER's review of CONTRACTOR's Work for the purposes of recommending payments nor ENGINEER's recommendation of any payment, including final payment, will impose responsibility on ENGINEER to supervise, direct, or control the Work or for the means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for CONTRACTOR's failure to comply with Laws and Regulations applicable to CONTRACTOR's performance of the Work. Additionally, said review or recommendation will not impose responsibility on ENGINEER to make any examination to ascertain how or for what purposes CONTRACTOR has used the moneys paid on account of the Contract Price, or to determine

that title to any of the Work, materials, or equipment has passed to OWNER free and clear of any Liens.

5. ENGINEER may refuse to recommend the whole or any part of any payment if, in ENGINEER's opinion, it would be incorrect to make the representations to OWNER referred to in paragraph 14.02.B.2. ENGINEER may also refuse to recommend any such payment or, because of subsequently discovered evidence or the results of subsequent inspections or tests, revise or revoke any such payment recommendation previously made, to such extent as may be necessary in ENGINEER's opinion to protect OWNER from loss because:

a. the Work is defective, or completed Work has been damaged, requiring correction or replacement;

b. the Contract Price has been reduced by Written Amendment or Change Orders;

c. OWNER has been required to correct defective Work or complete Work in accordance with paragraph 13.09; or

d. ENGINEER has actual knowledge of the occurrence of any of the events enumerated in paragraph 15.02.A.

C. Payment Becomes Due

1. Ten days after presentation of the Application for Payment to OWNER with ENGINEER's recommendation, the amount recommended will (subject to the provisions of paragraph 14.02.D) become due, and when due will be paid by OWNER to CONTRACTOR.

D. Reduction in Payment

1. OWNER may refuse to make payment of the full amount recommended by ENGINEER because:

a. claims have been made against OWNER on account of CONTRACTOR's performance or furnishing of the Work;

b. Liens have been filed in connection with the Work, except where CONTRACTOR has delivered a specific Bond satisfactory to OWNER to secure the satisfaction and discharge of such Liens;

c. there are other items entitling OWNER to a set-off against the amount recommended; or

d. OWNER has actual knowledge of the occurrence of any of the events enumerated in paragraphs 14.02.B.5.a through 14.02.B.5.c or paragraph 15.02.A.

2. If OWNER refuses to make payment of the full amount recommended by ENGINEER, OWNER must give CONTRACTOR immediate written notice (with a copy to ENGINEER) stating the reasons for such action and promptly pay CONTRACTOR any amount remaining after deduction of the amount so withheld. OWNER shall promptly pay CONTRACTOR the amount so withheld, or any adjustment thereto agreed to by OWNER and CONTRACTOR, when CONTRACTOR corrects to OWNER's satisfaction the reasons for such action.

3. If it is subsequently determined that OWNER's refusal of payment was not justified, the amount wrongfully withheld shall be treated as an amount due as determined by paragraph 14.02.C.1.

14.03 *CONTRACTOR's Warranty of Title* 14.03 *CONTRACTOR's Warranty of Title*

A. CONTRACTOR warrants and guarantees that title to all Work, materials, and equipment covered by any Application for Payment, whether incorporated in the Project or not, will pass to OWNER no later than the time of payment free and clear of all Liens.

14.04 *Substantial Completion* 14.04 Substantial Completion

A. When CONTRACTOR considers the entire Work ready for its intended use CONTRACTOR shall notify OWNER and ENGINEER in writing that the entire Work is substantially complete (except for items specifically listed by CONTRACTOR as incomplete) and request that ENGINEER issue a certificate of Substantial Completion. Promptly thereafter, OWNER, CONTRACTOR, and ENGINEER shall make an inspection of the Work to determine the status of completion. If ENGINEER does not consider the Work substantially complete, ENGINEER will notify CONTRACTOR in writing giving the reasons therefor. If ENGINEER considers the Work substantially complete, ENGINEER will prepare and deliver to OWNER a tentative certificate of Substantial Completion which shall fix the date of Substantial Completion. There shall be attached to the certificate a tentative list of items to be completed or corrected before final payment. OWNER shall have seven days after receipt of the tentative certificate

during which to make written objection to ENGINEER as to any provisions of the certificate or attached list. If, after considering such objections, ENGINEER concludes that the Work is not substantially complete, ENGINEER will within 14 days after submission of the tentative certificate to OWNER notify CONTRACTOR in writing, stating the reasons therefor. If, after consideration of OWNER's objections, ENGINEER considers the Work substantially complete, ENGINEER will within said 14 days execute and deliver to OWNER and CONTRACTOR a definitive certificate of Substantial Completion (with a revised tentative list of items to be completed or corrected) reflecting such changes from the tentative certificate as ENGINEER believes justified after consideration of any objections from OWNER. At the time of delivery of the tentative certificate of Substantial Completion ENGINEER will deliver to OWNER and CONTRACTOR a written recommendation as to division of responsibilities pending final payment between OWNER and CONTRACTOR with respect to security, operation, safety, and protection of the Work, maintenance, heat, utilities, insurance, and warranties and guarantees. Unless OWNER and CONTRACTOR agree otherwise in writing and so inform ENGINEER in writing prior to ENGINEER's issuing the definitive certificate of Substantial Completion, ENGINEER's aforesaid recommendation will be binding on OWNER and CONTRACTOR until final payment.

B. OWNER shall have the right to exclude CONTRACTOR from the Site after the date of Substantial Completion, but OWNER shall allow CONTRACTOR reasonable access to complete or correct items on the tentative list.

14.05 *Partial Utilization* 14.05 *Partial Utilization*

A. Use by OWNER at OWNER's option of any substantially completed part of the Work which has specifically been identified in the Contract Documents, or which OWNER, ENGINEER, and CONTRACTOR agree constitutes a separately functioning and usable part of the Work that can be used by OWNER for its intended purpose without significant interference with CONTRACTOR's performance of the remainder of the Work, may be accomplished prior to Substantial Completion of all the Work subject to the following conditions.

1. OWNER at any time may request CONTRACTOR in writing to permit OWNER to use any such part of the Work which OWNER believes to be ready for its intended use and substantially complete. If CONTRACTOR agrees that such part of the Work is substantially complete, CONTRACTOR will certify to OWNER and ENGINEER that such part of the Work is substantially complete and

request ENGINEER to issue a certificate of Substantial Completion for that part of the Work. CONTRACTOR at any time may notify OWNER and ENGINEER in writing that CONTRACTOR considers any such part of the Work ready for its intended use and substantially complete and request ENGINEER to issue a certificate of Substantial Completion for that part of the Work. Within a reasonable time after either such request, OWNER, CONTRACTOR, and ENGINEER shall make an inspection of that part of the Work to determine its status of completion. If ENGINEER does not consider that part of the Work to be substantially complete, ENGINEER will notify OWNER and CONTRACTOR in writing giving the reasons therefor. If ENGINEER considers that part of the Work to be substantially complete, the provisions of paragraph 14.04 will apply with respect to certification of Substantial Completion of that part of the Work and the division of responsibility in respect thereof and access thereto.

2. No occupancy or separate operation of part of the Work may occur prior to compliance with the requirements of paragraph 5.10 regarding property insurance.

14.06 *Final Inspection* 14.06 *Final Inspection*

A. Upon written notice from CONTRACTOR that the entire Work or an agreed portion thereof is complete, ENGINEER will promptly make a final inspection with OWNER and CONTRACTOR and will notify CONTRACTOR in writing of all particulars in which this inspection reveals that the Work is incomplete or defective. CONTRACTOR shall immediately take such measures as are necessary to complete such Work or remedy such deficiencies.

14.07 *Final Payment* 14.07 *Final Payment*

A. *Application for Payment*

1. After CONTRACTOR has, in the opinion of ENGINEER, satisfactorily completed all corrections identified during the final inspection and has delivered, in accordance with the Contract Documents, all maintenance and operating instructions, schedules, guarantees, Bonds, certificates or other evidence of insurance certificates of inspection, marked-up record documents (as provided in paragraph 6.12), and other documents, CONTRACTOR may make application for final payment following the procedure for progress payments.

2. The final Application for Payment shall be accompanied (except as previously delivered) by: (i) all documentation called for in the Contract Documents, including but not limited to the evidence of insurance required by subparagraph 5.04.B.7; (ii) consent of the surety, if any, to final payment; and (iii) complete and legally effective releases or waivers (satisfactory to OWNER) of all Lien rights arising out of or Liens filed in connection with the Work.

3. In lieu of the releases or waivers of Liens specified in paragraph 14.07.A.2 and as approved by OWNER, CONTRACTOR may furnish receipts or releases in full and an affidavit of CONTRACTOR that: (i) the releases and receipts include all labor, services, material, and equipment for which a Lien could be filed; and (ii) all payrolls, material and equipment bills, and other indebtedness connected with the Work for which OWNER or OWNER's property might in any way be responsible have been paid or otherwise satisfied. If any Subcontractor or Supplier fails to furnish such a release or receipt in full, CONTRACTOR may furnish a Bond or other collateral satisfactory to OWNER to indemnify OWNER against any Lien.

B. *Review of Application and Acceptance*

1. If, on the basis of ENGINEER's observation of the Work during construction and final inspection, and ENGINEER's review of the final Application for Payment and accompanying documentation as required by the Contract Documents, ENGINEER is satisfied that the Work has been completed and CONTRACTOR's other obligations under the Contract Documents have been fulfilled, ENGINEER will, within ten days after receipt of the final Application for Payment, indicate in writing ENGINEER's recommendation of payment and present the Application for Payment to OWNER for payment. At the same time ENGINEER will also give written notice to OWNER and CONTRACTOR that the Work is acceptable subject to the provisions of paragraph 14.09. Otherwise, ENGINEER will return the Application for Payment to CONTRACTOR, indicating in writing the reasons for refusing to recommend final payment, in which case CONTRACTOR shall make the necessary corrections and resubmit the Application for Payment.

C. *Payment Becomes Due*

1. Thirty days after the presentation to OWNER of the Application for Payment and accompanying documentation, the amount recommended by ENGINEER will become due and, when due, will be paid by OWNER to CONTRACTOR.

14.08 *Final Completion Delayed* 14.08 *Final Completion Delayed*

A. If, through no fault of CONTRACTOR, final completion of the Work is significantly delayed, and if ENGINEER so confirms, OWNER shall, upon receipt of CONTRACTOR's final Application for Payment and recommendation of ENGINEER, and without terminating the Agreement, make payment of the balance due for that portion of the Work fully completed and accepted. If the remaining balance to be held by OWNER for Work not fully completed or corrected is less than the retainage stipulated in the Agreement, and if Bonds have been furnished as required in paragraph 5.01, the written consent of the surety to the payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by CONTRACTOR to ENGINEER with the Application for such payment. Such payment shall be made under the terms and conditions governing final payment, except that it shall not constitute a waiver of Claims.

14.09 *Waiver of Claims* 14.09 *Waiver of Claims*

A. The making and acceptance of final payment will constitute:

1. a waiver of all Claims by OWNER against CONTRACTOR, except Claims arising from unsettled Liens, from defective Work appearing after final inspection pursuant to paragraph 14.06, from failure to comply with the Contract Documents or the terms of any special guarantees specified therein, or from CONTRACTOR's continuing obligations under the Contract Documents; and

2. a waiver of all Claims by CONTRACTOR against OWNER other than those previously made in writing which are still unsettled.

ARTICLE 15 - SUSPENSION OF WORK AND TERMINATION

15.01 OWNER May Suspend Work 15.01 OWNER May Suspend Work

A. At any time and without cause, OWNER may suspend the Work or any portion thereof for a period of not more than 90 consecutive days by notice in writing to CONTRACTOR and ENGINEER which will fix the date on which Work will be resumed. CONTRACTOR shall resume the Work on the date so fixed. CONTRACTOR shall be allowed an adjustment in the Contract Price or an extension of the Contract Times, or both, directly attributable to any such suspension if CONTRACTOR makes a Claim therefor as provided in paragraph 10.05.

15.02 OWNER May Terminate for Cause 15.02 OWNER May Terminate for Cause

A. The occurrence of any one or more of the following events will justify termination for cause:

1. CONTRACTOR's persistent failure to perform the Work in accordance with the Contract Documents (including, but not limited to, failure to supply sufficient skilled workers or suitable materials or equipment or failure to adhere to the progress schedule established under paragraph 2.07 as adjusted from time to time pursuant to paragraph 6.04);

2. CONTRACTOR's disregard of Laws or Regulations of any public body having jurisdiction;

3. CONTRACTOR's disregard of the authority of ENGINEER; or

4. CONTRACTOR's violation in any substantial way of any provisions of the Contract Documents.

B. If one or more of the events identified in paragraph 15.02.A occur, OWNER may, after giving CONTRACTOR (and the surety, if any) seven days written notice, terminate the services of CONTRACTOR, exclude CONTRACTOR from the Site, and take possession of the Work and of all CONTRACTOR's tools, appliances, construction equipment, and machinery at the Site, and use the same to the full extent they could be used by CONTRACTOR (without liability to CONTRACTOR for trespass or conversion), incorporate in the Work all materials and equipment stored at the Site or for which OWNER has paid CONTRACTOR but which are stored elsewhere, and finish the Work as

OWNER may deem expedient. In such case, CONTRACTOR shall not be entitled to receive any further payment until the Work is finished. If the unpaid balance of the Contract Price exceeds all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by OWNER arising out of or relating to completing the Work, such excess will be paid to CONTRACTOR. If such claims, costs, losses, and damages exceed such unpaid balance, CONTRACTOR shall pay the difference to OWNER. Such claims, costs, losses, and damages incurred by OWNER will be reviewed by ENGINEER as to their reasonableness and, when so approved by ENGINEER, incorporated in a Change Order. When exercising any rights or remedies under this paragraph OWNER shall not be required to obtain the lowest price for the Work performed.

C. Where CONTRACTOR's services have been so terminated by OWNER, the termination will not affect any rights or remedies of OWNER against CONTRACTOR then existing or which may thereafter accrue. Any retention or payment of moneys due CONTRACTOR by OWNER will not release CONTRACTOR from liability.

15.03 OWNER May Terminate For Convenience 15.03 OWNER May Terminate For Convenience

A. Upon seven days written notice to CONTRACTOR and ENGINEER, OWNER may, without cause and without prejudice to any other right or remedy of OWNER, elect to terminate the Contract. In such case, CONTRACTOR shall be paid (without duplication of any items):

1. for completed and acceptable Work executed in accordance with the Contract Documents prior to the effective date of termination, including fair and reasonable sums for overhead and profit on such Work;

2. for expenses sustained prior to the effective date of termination in performing services and furnishing labor, materials, or equipment as required by the Contract Documents in connection with uncompleted Work, plus fair and reasonable sums for overhead and profit on such expenses;

3. for all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) incurred in settlement of

terminated contracts with Subcontractors, Suppliers, and others; and

4. for reasonable expenses directly attributable to termination.

B. CONTRACTOR shall not be paid on account of loss of anticipated profits or revenue or other economic loss arising out of or resulting from such termination.

15.04 CONTRACTOR May Stop Work or Terminate 15.04 CONTRACTOR May Stop Work or Terminate

A. If, through no act or fault of CONTRACTOR, the Work is suspended for more than 90 consecutive days by OWNER or under an order of court or other public authority, or ENGINEER fails to act on any Application for Payment within 30 days after it is submitted, or OWNER fails for 30 days to pay CONTRACTOR any sum finally determined to be due, then CONTRACTOR may, upon seven days written notice to OWNER and ENGINEER, and provided OWNER or ENGINEER do not remedy such suspension or failure within that time, terminate the Contract and recover from OWNER payment on the same terms as provided in paragraph 15.03. In lieu of terminating the Contract and without prejudice to any other right or remedy, if ENGINEER has failed to act on an Application for Payment within 30 days after it is submitted, or OWNER has failed for 30 days to pay CONTRACTOR any sum finally determined to be due, CONTRACTOR may, seven days after written notice to OWNER and ENGINEER, stop the Work until payment is made of all such amounts due CONTRACTOR, including interest thereon. The provisions of this paragraph 15.04 are not intended to preclude CONTRACTOR from making a Claim under paragraph 10.05 for an adjustment in Contract Price or Contract Times or otherwise for expenses or damage directly attributable to CONTRACTOR's stopping the Work as permitted by this paragraph.

ARTICLE 16 - DISPUTE RESOLUTION

16.01 Methods and Procedures 16.01 Methods and Procedures

A. Dispute resolution methods and procedures, if any, shall be as set forth in the Supplementary Conditions. If no method and procedure has been set forth, and subject to the provisions of paragraphs 9.09 and 10.05, OWNER and CONTRACTOR may exercise such rights or remedies as either may otherwise have under the Contract Documents or by Laws or Regulations in respect of any dispute.

ARTICLE 17 - MISCELLANEOUS

17.01 *Giving Notice* 17.01 *Giving Notice*

A. Whenever any provision of the Contract Documents requires the giving of written notice, it will be deemed to have been validly given if delivered in person to the individual or to a member of the firm or to an officer of the corporation for whom it is intended, or if delivered at or sent by registered or certified mail, postage prepaid, to the last business address known to the giver of the notice.

17.02 *Computation of Times* 17.02 *Computation of Times*

A. When any period of time is referred to in the Contract Documents by days, it will be computed to exclude the first and include the last day of such period. If the last day of any such period falls on a Saturday or Sunday or on a day made a legal holiday by the law of the applicable jurisdiction, such day will be omitted from the computation.

17.03 *Cumulative Remedies* 17.03 *Cumulative Remedies*

A. The duties and obligations imposed by these General Conditions and the rights and remedies available hereunder to the parties hereto are in addition to, and are not to be construed in any way as a limitation of, any rights and remedies available to any or all of them which are otherwise imposed or available by Laws or Regulations, by special warranty or guarantee, or by other provisions of the Contract Documents, and the provisions of this paragraph will be as effective as if repeated specifically in the Contract Documents in connection with each particular duty, obligation, right, and remedy to which they apply.

17.04 *Survival of Obligations* 17.04 *Survival of Obligations*

A. All representations, indemnifications, warranties, and guarantees made in, required by, or given in accordance with the Contract Documents, as well as all continuing obligations indicated in the Contract Documents, will survive final payment, completion, and acceptance of the Work or termination or completion of the Agreement.

17.05 *Controlling Law* 17.05 *Controlling Law*

A. This Contract is to be governed by the law of the state in which the Project is located.

SECTION 00800

SPECIAL CONDITIONS

Additions to and Modifications of General Conditions, Section 00700.

ARTICLE 1. DEFINITIONS

- 1.1 See General Conditions, Article 1 - Definitions. Add the following additional definitions.
- 1.2 Addenda - Written or graphic instruments (if any) issued prior to the opening of Bids, which clarify, correct or change the Contract Documents.
- 1.3 USEPA - The United States Environmental Protection Agency and any of its employees, agents, consultants, contractors and their subcontractors.
- 1.4 Site - The Former L.A. Darling Facility, NBFF-OU2 , Bronson, MI located on property described in the Contract Documents.
- 1.5 Site Specific Work Plan (SSWP) Soils Removal Activities, Former L.A. Darling Facility, NBFF-OU2 and attached hereto.
- 1.6 Remedial Action Coordinator or RAC – Raymond J. Avendt Ph.D. PE, Remedial Action Coordinator, who shall act as the Owner's representative to the USEPA during the life of the Project.
- 1.7 Owner's Project Manager - The person directly responsible to the Owner.

ARTICLE 2. CONTRACTOR'S GENERAL OBLIGATIONS

- 2.1 See General Conditions, paragraph 2.5, 6.1, 6.2, 6.4, 6.8, 6.11, 6.13 and 6.15. The following are additions to the General Conditions.
- 2.2 Contractor represents that it knows the nature and scope of Work, the location and characteristics of the Site, the type of magnitude of services and labor required, the character of equipment, materials and facilities required and the general and local conditions and other matters which could affect the Work. Contractor's failure to become knowledgeable about or to discover matters which affect the Work shall not relieve Contractor from its obligations under the Agreement.
- 2.3 Contractor shall not issue any publicity announcements regarding the Work or its activities related thereto without the prior written approval of Owner. Contractor shall cause its subcontractors and vendors to comply with this requirement as well and shall be responsible to Owner for their compliance.
- 2.4 Contractor shall be responsible for interpretations made by it or its subcontractors or vendors in translating the data, information and requirements of the Contract Documents and for Work performed by Contractor, subcontractors or vendors based on data or information not contained in the Contract Documents.
- 2.5 Contractor will prepare all materials for placement in accordance with all valid and applicable statutes, ordinances, orders, rules and regulations of the federal, state and local governments in whose jurisdiction such materials are to be transported and/or disposed of by Contractor.

ARTICLE 3. OWNER'S OBLIGATIONS

3.1 See General Conditions, Article 8.

ARTICLE 4. ENGINEER STATUS

4.1 See General Conditions, Article 9. The following are additions to the General Conditions.

4.2 The terms "Engineer", "Resident Engineer", and "Resident Project Representative" as used in the Contract Documents shall be considered to have the same meaning. The Engineer shall report to the Owner's Project Manager.

4.3 Owner and /or Engineer shall maintain an on-site representative at the Site during all scheduled work periods, and other Owner's representatives shall make visits to the Site at such intervals as Owner deems appropriate to observe the progress and quality of the executed Work and to determine, in general, if the Work is proceeding in accordance with the Contract Documents. On the basis of such visits and on-site observations, Engineer will keep Owner informed of the progress of the Work and will endeavor to protect Owner against defects and deficiencies in the Work. An Owner's representative shall sign any waste manifests. Contractor shall serve all written submittals required by the terms of the Contract Documents upon Owner's on-site representative.

4.4 Engineer will determine the actual quantities and classifications of unit price work performed by Contractor. Engineer will review Contractor preliminary determinations on such matters before rendering a written decision thereon. Engineer's written decision will be final and binding upon Contractor, unless within ten (10) days after the date of any such decision, Contractor delivers to Engineer and Owner written notice of intention to arbitrate such decision in accordance with Article 17 hereof.

ARTICLE 5. CONTRACT PRICE AND CONTRACT TIME

5.1 Contract Price is listed on Bid Form.

5.2 The Contract Time for completion of the Work, including demobilization, shall not exceed 180 calendar days.

ARTICLE 6. SCHEDULE, PAYMENT, COMPLETION AND LIQUIDATED DAMAGES

6.1 See General Conditions Article 14. The following are additions to the General Conditions.

6.2 Contractor shall prepare and provide to the Owner, written bi-weekly (every 14 days) progress reports which:

- (1) Describe the actions which have been taken to complete the Work since the prior bi-weekly submittal;
- (2) Include all results of sampling and testing and all other data received by the Contractor since the prior bi-weekly submittal;
- (3) Summarize all analytical work, plans and procedures relating to the Work completed since the prior bi-weekly submittal;
- (4) Describe all actions, data, sampling and testing and plans which are scheduled for the next two week period and provide other information relating to the progress of construction as is customary in the industry;
- (5) Include all information regarding percentage of completion, unresolved delays or problems encountered or anticipated that may affect the future schedule of the Work, any scheduled deadlines which have been missed, and a description of efforts made to mitigate those delays or anticipated delays.

- (6) These reports are to be submitted to the Owner not later than five days following the conclusion of each two week period after the effective date of the Notice to Proceed.

6.3 Owner may refuse to make payment of the full amount recommended by Engineer because claims have been made against Owner on account of Contractor's performance or furnishing of the Work or liens have been filed in connection with the Work or there are other items entitling Owner to a setoff against the amount recommended, or the USEPA has disapproved or rejected Contractor's performance of the Work, but Owner must give Contractor immediate written notice, with a copy to Engineer, stating such action.

6.4 LIQUIDATED DAMAGES

6.4.1 Contractor acknowledges and agrees that the Work as delineated in the Contract Documents includes deadlines and schedules, the non-compliance with which may lead to the imposition of additional costs to be paid by the Owner.

Contractor, therefore, agrees that it will pay to Owner as liquidated damages the lump sum of \$1,500.00/day to the extent that such additional costs are solely due to Contractor's failure to meet a deadline or schedule included in or required by the Contract Documents. Any such liquidated damages shall be due and payable fifteen (15) calendar days following receipt by Contractor of written demand from Owner.

ARTICLE 7. CHANGES IN THE WORK

7.1 See General Conditions Article 10, 11 and 12. The following are additions to these General Conditions.

7.2 If Owner and Contractor are unable to agree as to the extent, if any, of an increase or decrease in the Contract Price or an extension or shortening of the Contract Time that should be allowed as a result of any Change Order, the matter may be referred to arbitration pursuant to Article 17 hereof; provided however, that pending such arbitration, Contractor shall carry on the Work, including the Work set forth in the Change Order in dispute, and adhere to the progress schedule provided pursuant to Article 6 hereof.

ARTICLE 8. CHANGE OF CONTRACT PRICE

8.1 See General Conditions Article 11. The following are revisions to these General Conditions, paragraph 11.2.

8.2 Claims for adjustments shall be resolved by agreement of the parties. If the parties are unable to resolve such claim, then the claim shall be referred to arbitration in accordance with Article 17 hereof; provided, however, that during the pendency of any such arbitration, Contractor shall carry on the Work and adhere to the progress schedule provided pursuant to Article 6 hereof.

ARTICLE 9. CHANGE OF CONTRACT TIME.

9.1 See General Conditions Article 12. The following are additions to these General Conditions.

9.2 The foregoing notwithstanding, Contractor shall be responsible for any and all stipulated penalties imposed upon Owner by USEPA as a result of any extension of the Contract Time, as provided in Article 6 hereof, regardless of whether such extension is granted by agreement or arbitration.

ARTICLE 10. FORCE MAJEURE

- 10.1 If any circumstances have occurred, are occurring, or will occur, which Contractor believes or should reasonably believe may cause a delay in performance of the Work, whether or not due to a Force Majeure event, Contractor shall notify Owner in writing within two (2) working days after the Contractor knew or reasonably should have known of the occurrence of the event responsible for the delay or the anticipated delay as appropriate, referencing this Article and describing the anticipated length of the delay, the precise cause or causes of the delay, any measures taken and that will be taken to prevent or to minimize the delay, and the time required to take any such measures. The Contractor shall take all actions that are reasonably necessary under the circumstances to prevent or minimize any such delay.
- 10.2 If the delay or anticipated delay referenced in this Article does not impact upon any schedule or deadline the violation of which will result in the imposition of additional costs on Owner, and if Owner finds that: (a) Contractor has complied with the notice requirements of this Article, (b) that any delay or anticipated delay has been or will be caused by fire, flood, riot, strike or other circumstances beyond the control of Contractor, and (c) that Contractor has taken all actions that are reasonably necessary under the circumstances to prevent or minimize any such delay, Owner shall extend the time for performance hereunder for a period of no longer than the delay resulting from such circumstances, by issuing an appropriate Change Order. Force Majeure shall not include subcontractor's breach, unless such breach falls within the requirements of (a), (b) and (c) of this paragraph.

ARTICLE 11. BONDS AND INSURANCE

11.1 PERFORMANCE BOND

11.1.1 See General Conditions Article 5. Delete Paragraph 5.1 and 5.2.

11.1.2 Contractor shall, within five (5) days of the Notice of Award furnish performance-payment bond, each in the penal sum of 125 percent of the estimated contract price as security for the faithful performance and payment of all Contractor's obligations under the Contract Documents. These bonds shall remain in effect at least until one year after the date when final payment becomes due. All bonds shall be in forms prescribed by law or regulation or by the Contract Documents and shall be executed by such sureties as are authorized to do business in the State of Michigan and named in the current list of "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (as amended) by the Audit Staff Bureau of Accounts, U.S. Treasury Department. All bonds signed by an agent must be accompanied by a certified copy of the authority to act.

11.1.3 If the surety on any bond furnished by Contractor is declared bankrupt or becomes insolvent or its right to do business is terminated in the State of Michigan or it ceases to meet the requirements of Paragraph 11.1.2 hereof, Contractor shall within five (5) days thereafter substitute another bond and surety, both of which must be acceptable to Owner.

11.1.4 Contractor shall be free to post a letter of credit securing performance of Contractor's obligations under the Agreement in lieu of the performance bond provided in Paragraph 11.1.2 above. The terms of such letter of credit shall be the same as those required for the performance bond, except that Owner must obtain the certification by a registered engineer (which may include Engineer) that disbursement of the funds under the letter of credit is due according to the terms of the Agreement.

11.2 INSURANCE

11.2.1 See General Conditions Article 5. Delete Paragraphs 5.3, 5.3.1, 5.3.2, 5.3.3, 5.3.5, 5.3.6, 5.4.1, 5.4.2, 5.4.3, 5.4.4, 5.4.5, and 5.4.6.

- 11.2.2 Contractor shall not begin performance of the work until it has obtained all the insurance required by the Agreement, has furnished certificates of insurance satisfactory to Owner evidencing the required coverage and has provided to Owner copies of any provisions in Contractor's contract(s) of insurance including coverage for pollution. If Contractor neglects or refuses to procure any insurance required herein or if any insurance is canceled, Owner may procure such insurance and adjust the Contract Price by the amount of premiums changed therefor.
- 11.2.3 Contractor shall, within five (5) days of the Notice of Award, have its insurance carriers furnish to Owner insurance certificates specifying the dates of each policy and a statement that no insurance will be canceled or materially changed prior to completion of the Work without thirty (30) calendar days prior written notice to Owner. Contractor shall make such arrangements as are necessary to insure that no termination, reduction or expiration of the insurance required herein becomes effective until thirty (30) days after Owner has received such notice.
- 11.2.4 Contractor shall require its subcontractors to carry and maintain insurance equivalent to that required of Contractor pursuant to Paragraph 11.2.5. However, Contractor may waive such requirements for subcontractors with the prior written approval of Owner. When such approval is given, Owner will specify the type and amount of insurance Contractor shall have its subcontractor furnish the same evidence of insurance as required of Contractor herein.
- 11.2.5 Contractor shall take out and maintain, at its expense, during the term of the Agreement the following minimum insurance with insurance companies satisfactory to Owner:

<u>INSURANCE COVERAGE</u>	
<u>COVERAGE</u>	<u>LIMITS</u>
(a) Worker's Compensation	Statutory
(b) Employer's Liability	Contractor's Normal and Customary, or \$5 million per occurrence, whichever is greater
(c) Comprehensive General	Contractor's Normal and Customary, or \$5 million per occurrence, whichever is greater
(d) Business Auto	\$1 million per accident
(e) Professional Liability	\$5 million aggregate

In addition, the required coverage shall include an endorsement providing insurance coverage for Contractor's contractual liability under the Agreement. Policies for the above insurance coverage shall not be changed or canceled without thirty (30) days prior written notice from the insurance carrier to Owner.

- 11.2.6 The insurance requirements set forth herein are minimum coverage requirements and are not to be construed in any way as a limitation on Contractor's liability under the Agreement.

ARTICLE 12. INDEMNIFICATION

- 12.1 Contractor agrees to defend, indemnify and save harmless the Owner and their present and future officers or directors and employees, from and against any and all liabilities, penalties, forfeitures, demands, claims, causes of action, suits, and costs and expenses incidental thereto (including costs of defense, settlement and reasonable attorney's fees), which any or all of them may hereafter suffer, for bodily injuries (including death) to any person, damage (including loss of use) to any property (public or private), contamination of or adverse effects on the environment, or any violation or alleged violation of statutes, ordinances, order rules or regulations of any governmental entity or agency, to the extent such are caused by or arise from the breach of any warranties by

Contractor, or any negligent or willful act or omission of Contractor, its employees or subcontractors in the performance of this Agreement.

- 12.2 The Owner agrees to defend, indemnify and save harmless the Contractor, its present and future officers, directors, and employees from and against any and all liabilities, penalties, forfeitures, demands, claims causes of action, suits, and costs and expenses incidental thereto (including costs of defense, settlement, and reasonable attorney's fees), which any or all of them may hereafter suffer, for bodily injuries (including death) to any person, damage (including loss of use) to any property (public or private), contamination of or adverse effects on the environment, or any violation or alleged violation of statutes, ordinances, orders, rules or regulations of any governmental entity or agency, to the extent such are caused by, or arise from the breach of any warranties by the Owner, or any negligent or willful act or omission of Owner, its employees or subcontractors in the performance of this Agreement.

ARTICLE 13. ASSIGNMENT

- 13.1 Contractor may neither assign the Agreement nor delegate its duties hereunder without the prior written approval of Owner (subject only to the provisions of General Conditions, Paragraph 6.8 dealing with subcontractors). Any such assignment without obtaining the prior written consent of Owner shall be deemed null and void.

ARTICLE 14. NON-RESTRICTIVE CLAUSE

- 14.1 Wherever manufacturer, brand or product names may appear in the Contract documents, they are included for purpose of establishing identification and a general description of the item. Whenever such names appear, the term "or approval equal" shall be deemed to follow. The decision on the approval equal will be rendered by Engineer.

ARTICLE 15.SUSPENSION

- 15.1 See General Conditions Article 15. Change Paragraph 15.1 third line from "ninety days" to "sixty (60) days".

ARTICLE 16.TERMINATION

16.1 TERMINATION FOR CONVENIENCE

- 16.1.1 See General Conditions Article 15. Delete Paragraph 15.2.
- 16.1.2 Contractor's performance under this Agreement may be terminated in whole or in part by Owner whenever such termination is in the best interest of Owner. However, Owner shall not terminate a part of this Agreement in order to perform such portion by itself or by other Contractors. Any such termination shall be effected by delivery to the Contractor of a written notice of termination specifying the extent to which performance of work under the Agreement is terminated and the date upon which such termination becomes effective.
- 16.1.3 In the event Owner terminates pursuant to Paragraph 16.1.2, the Contractor shall be paid for all approved work completed up to the time of termination, all materials ordered for the work (which materials should become the property of Owner) up to the time of termination (unless such orders can be canceled) and all reasonable costs to remove any of Contractor's equipment, materials and labor for the site. All costs incurred after the date of termination shall be submitted to Owner in a separate Application for Payment in accordance with the provisions set forth in Article 6 hereof.

16.2 TERMINATION FOR CAUSE

- 16.2.1 See General Conditions Article 15. Delete Paragraphs 15.3 and 15.4

- 16.2.2 Upon the occurrence of any one or more of the events set forth in Paragraphs 16.2.2.1 through 16.2.2.9 below, Owner may, after giving Contractor (and the surety) seven (7) days written notice to terminate the services of Contractor, exclude Contractor from the site, and take possession of the work and incorporate into the work all materials and equipment stored at the site or for which Owner has paid Contractor but which are stored elsewhere, and finish the work as Owner may deem expedient. In such case, Contractor shall not be entitled to receive any further payment until the work is finished. If the unpaid balance of the contract price exceed the direct, indirect and consequential costs of completing the work (including but not limited to fees and charges of engineers, architects, attorneys and other professionals and court and arbitration costs) such excess will be paid to Contractor. If such costs exceed such unpaid balance, Contractor shall pay the difference to Owner. Such costs incurred by Owner will be incorporated into a Change Order in accordance with the provisions of Article 7 hereof. When exercising any rights or remedies under this Article, Owner shall not be required to obtain the lowest price for the work performed.
- 16.2.2.1 If Contractor commences a voluntary case under any chapter of the United States Bankruptcy code as now or hereafter in effect, or if Contractor takes any equivalent or similar action by filling a petition or otherwise under any other federal or state law in effect at such time relating to the bankruptcy or insolvency of Contractor;
- 16.2.2.2 If a petition is filed against Contractor under any chapter of the United States Bankruptcy Code as now or hereafter in effect at the time of filing, or if a petition is filed seeking any such equivalent or similar relief against Contractor under any other federal or state law in effect at the time relating to bankruptcy or insolvency;
- 16.2.2.3 If Contractor makes a general assignment for the benefit of creditors;
- 16.2.2.4 If a trustee, receiver, custodian or agent of Contractor is appointed under applicable law or under contract, whose appointment or authority to take charge or property of Contractor is for the purpose of enforcing of lien against such property or for the purpose of general administration of such property for the benefit of Contractor's creditors;
- 16.2.2.5 If Contractor admits in writing an inability to pay its debts generally as they become due;
- 16.2.2.6 If, in the judgment of Owner or USEPA, Contractor persistently fails to perform the work in accordance with the Contract Documents, (including but not limited to failure to supply sufficient skilled workers or suitable materials or equipment or failure to adhere to the progress schedule established pursuant to Article 6 hereof as revised from time to time);
- 16.2.2.7 If, in the judgment of Owner or USEPA, Contractor disregards or violates applicable federal, state or local statutes, laws, ordinances, codes or regulations;
- 16.2.2.8 If Contractor disregards the authority of Engineer; or
- 16.2.2.9 If, in the judgment of Owner or USEPA, Contractor otherwise violates in any substantial way any provisions of the Contract Documents and fails to cure such violation within three (3) working days of receipt of written notice of such violation from Owner.
- 16.2.3 Where Contractor's service has been so terminated by Owner, the termination will not affect any rights of remedies of Owner against Contractor then existing or which may thereafter occur. Any retention or payment of monies due Contractor by Owner will not release Contractor from liability.

ARTICLE 17. ARBITRATION

- 17.1 All claims, disputes and other matters in question between Owner and Contractor arising out of or relating to the Contract Documents or the breach thereof (except for claims which have been waived by the acceptance of final payment) will be decided by arbitration in accordance with the Construction Industry Arbitration Rules of the American Arbitration Association then obtaining. This agreement to so arbitrate and any other agreement or consent to arbitrate entered into in accordance herewith will be specifically enforceable under the prevailing law of any court having jurisdiction.
- 17.2 Notice of the demand of arbitration shall be filed in writing with the other party to the Agreement and with the American Arbitration Association, and a copy will be sent to Engineer for information. Unless otherwise set forth in this Agreement, the demand for arbitration shall be made as soon as practicable after the party demanding arbitration determines that the matter in issue cannot be resolved by agreement. In no event shall any such demand be made after the date when institution of legal or equitable proceedings based upon such claim, dispute or other matter in question would be barred by the applicable statute of limitations. Neither the filing of a demand for arbitration, nor the pendency of any such demand shall excuse Contractor from carrying on the Work and adhering to the progress schedule submitted pursuant to General Conditions Article 14 and these Special Conditions Article 6 hereof.

ARTICLE 18. AUDIT.

- 18.1 Contractor shall keep and cause its subcontractors to keep, in accordance with generally accepted accounting practices, books, records and accounts pertaining to performance of the Work, including Contractor's and subcontractors' correspondence, instructions, plans, drawings, receipts, vouchers, memoranda, data stored in computer libraries and such other documentation and related systems and controls necessary for an accurate audit and verification of costs incurred and charges made in performance of the Work. Contractor shall preserve and shall cause its subcontractors to preserve such documents during the performance of the Work and for a period of six (6) years after completion of the Work. In the event the completion of the Work is conducted by a contractor other than Contractor, Owner shall give Contractor written notice of the date of completion of the Work and Contractor shall preserve such documents for a period of six (6) years therefrom. If Owner requests in writing that some or all of the documents be preserved for a longer period of time, Contractor shall comply with that request. Contractor shall make available and shall cause its subcontractors to make available for inspection by the USEPA all documents described herein. There shall be no additional charge for the preservation of items described herein for a period of six (6) years after completion of the Work.
- 18.2 Owner shall have the right to inspect and copy at Owner's expense, during regular working hours, all material required to be maintained by Contractor and subcontractors pursuant to Paragraph 18.1 above. Such right of inspection and copying shall exclude all records relating to costs, profit and pricing lump sum and unit rate prices in this Agreement.
- 18.3 If an inspection indicates errors in Contractor's Applications for Payment, inconsistent with the terms of this Agreement, Contractor shall make an appropriate adjustment. Contractor shall promptly refund overpayments, and Owner shall promptly pay underpayments, if due.

ARTICLE 19. SITE SECURITY

- 19.1 See General Requirements, Section 01540, Security.
- 19.2 The Contractor shall during the performance of the Work, take no action which will reduce or impair in any way the security provided at the Site below the level existing at the commencement of the Work. No action requiring a reduction in the level of security shall be undertaken, without the express written consent of Owner.

ARTICLE 20. DRAWINGS AND SPECIFICATIONS

20.1 See General Conditions Article 2, paragraph 2.3 and 2.7.

ARTICLE 21. SHOP DRAWINGS

21.1 See General Conditions Article 6, paragraph 6.23 through 6.28.

ARTICLE 22. INSPECTION AND ACCEPTANCE

22.1 See General Conditions Article 13, paragraph 13.2 and 13.4. Add after ENGINEER, "the Owner and USEPA."

22.2 All Work (including but not restricted to materials, workmanship, manufacturing and fabrication of components) shall be subject to inspection and testing by Owner, Engineer and USEPA to the extent authorized in Paragraph XII.B., entitled "Access to the Site," of the Consent Decree at all reasonable times and places prior to acceptance. Any such inspection and testing is for the sole benefit of Owner and shall not relieve the Contractor of the responsibility of providing quality control measures to assure that the Work strictly complies with the Contract Documents.

ARTICLE 23. DIFFERING SITE CONDITIONS

23.1 See Bidding Requirements, Section 00100, Instructions to Bidders.

23.2 In no event shall differences in quantities or contents of materials in tanks, pipes, drums or containers of any sort from the estimates or identities of such quantities or contents as set forth in the Contract Documents be deemed a materially different condition for purposes of this Article.

ARTICLE 24. OTHER CONTRACTS AND WORK

24.1 Owner may undertake or award other contracts for other work at or near the Site of the Work required under this Agreement. Contractor shall fully cooperate and coordinate with any contractors or subcontractors retained by Owner to perform such other work. Owner shall not be responsible for any loss, damage or delay suffered by Contractor due to the actions or inactions of any other contractor or subcontractor. The indemnity provisions of Article 12 shall apply to any claims for personnel injury or property damage by any such other contractor or subcontractor or their employees or agents.

ARTICLE 25. PERMITS AND RESPONSIBILITIES

25.1 See General Conditions Article 6. Delete paragraph 6.14, Permits, and add the following requirements.

25.2 Contractor shall, without additional expense to Owner, be responsible for obtaining any and all necessary licenses and permits and for complying with any and all applicable federal, state and municipal laws, codes, regulations and ordinances in connection with the performance of the Work. In submitting its bi-weekly (every 14 days) progress reports, Contractors shall include an updated schedule of licenses and permits.

25.3 Contractor shall also be responsible for all materials and equipment delivered to the Site and for all Work performed at the Site until completion and acceptance of the entire Work.

ARTICLE 26. USE OF HAZARDOUS CHEMICALS

- 26.1 If Contractor believes that in performance of the Work it may employ any chemicals, materials or substances that are covered by reference or definition by the Occupational Safety and Health Administration (hereinafter "OSHA") and/or the Michigan Worker and Community Right-To-Know Act, then at least one week prior to the use of such chemicals, materials or substances, Contractor shall supply to Engineer a set of material safety data sheets for all such chemicals, materials and substances.
- 26.2 Contractor shall obtain the express written approval of Owner prior to using any chemicals with a flammability or reactivity hazard of 2, 3, or 4 as defined in the National Fire Protection Association Standard NFPA 704.
- 26.3 During the performance of the Work, Contractor shall undertake any and all necessary precautions to insure that Owner and Engineer personnel and property are not exposed to physical or health hazards from any of the aforementioned chemicals, materials, and substances. Contractor shall also insure that all such substances are properly stored on-site.

ARTICLE 27. SAFETY AND HEALTH

- 27.1 See General Conditions, Article 6, paragraph 6.20, Safety and Protection. Add the following requirements.
- 27.2 Owner and Engineer place and the Owner requires Contractor to place the highest importance and priority on safety and health during performance of the Work.
- 27.3 Prior to commencement of the Work, Contractor shall designate a safety and health supervisor who shall be responsible for Contractor's and its subcontractors' compliance with safety and health regulations imposed by applicable law or the Contract Documents. The safety and health supervisor, whose duties are outlined in Division 1, Section 01160 in the Specifications shall be available at the Site at all time during performance of the work to assure that the Work is being performed in accordance with the safety and health requirements of applicable laws and regulations and the Contract Documents and to consult with Owner and Engineer on matters relating to safety and health.
- 27.4 Contractor shall insure that construction tools, equipment, facilities and other items used in performance of the Work, whether purchased, rented, leased or otherwise provided or procured by Contractor or its subcontractors are in a safe condition and capable of performing the functions for which they are intended.
- 27.5 Contractor shall keep the Site and the adjoining premises, driveways and streets clear of construction materials and rubbish caused by Contractor's performance of the Work, except as necessary for performance of the Work.
- 27.6 Owner, Engineer or USEPA may inspect at reasonable times the Site and appropriate Work records to ascertain Contractor's and its subcontractors' compliance with safety and health requirements. However, neither the existence nor exercise of such rights shall relieve Contractor or its responsibility for monitoring its own and its subcontractors' compliance with safety and health requirements and for fulfilling all its other obligations with respect to health and safety.
- 27.7 The Contractor shall be subject to the provisions of the site specific Health and Safety Plan for all the Work at the Site.
- 27.8 See General Requirements, Section 01160, Health and Safety Plan.

ARTICLE 28. COMPLIANCE WITH LAW

- 28.1 See General Conditions Article 6, paragraph 6.15, Laws and Regulations.
- 28.2 Contractor, in performing the Work, shall comply and shall require subcontractors and vendors to comply with all applicable federal, state and local statutes, laws, rules, regulations and ordinances including, without limitation, requirements under OSHA and the Michigan Worker and Community Right-To-Know Act. Contractor shall not take and is not authorized to take any action in the name of or otherwise on behalf of Owner that would violate any applicable law. If Contractor or its subcontractors or vendors perform any of the Work contrary to applicable law, any additional costs resulting therefrom shall not be charges to Owner.
- 28.3 Contractor shall not enter into negotiations with any governmental authority or agency regarding performance of the Work without the prior written approval of Owner except as necessary to secure the permit required in Article 25.2 hereof. Contractor shall cause its subcontractors and vendors to comply with this requirement as well.
- 28.4 Contractor agrees to defend, indemnify and save harmless Owner and Engineer, their respective present and future officers and directors and employees, from and against any and all liabilities, penalties, demands, claims, causes of action, suits or proceedings and costs and expenses incidental thereto (including costs of defense, settlement and reasonable attorneys' fees), brought against Owner or Engineer to the extent that such arise or occur by reason of any alleged violation or violations of applicable law by Contractor, its subcontractors or vendors in performance of the Work. If Contractor fails to provide said defense at its expense, Owner and/or Engineer may provide such defense instead and shall be entitled to reimbursement, either by adjustment of the Contract Price or otherwise from Contractor for all costs involved (including costs of defense, settlement and reasonable attorneys' fees).
- 28.5 Contractor shall promptly notify Owner in writing upon discovery of any failure of Contractor or of its subcontractors or vendors to comply with any requirements of this Article.

ARTICLE 29. COVENANTS AND WARRANTIES

- 29.1 Contractor covenants and warrants to Owner that:
- 29.1.1 Contractor is engaged in the business of performing services with respect to the types of materials that the Contract Documents indicate will or may be encountered at the Site and has the requisite experience, knowledge and expertise, facilities, qualified personnel and legal right to perform the Work.
- 29.1.2 Contractor knows and understands that materials that it will encounter at the Site may be flammable, hazardous, toxic, corrosive or otherwise regulated as described in the Contract Documents and/or Specifications.
- 29.1.3 See General Conditions, Article 13. Delete paragraph 13.10, One-Year Correction Period, and replace with the following.
- 29.1.4 For a period of one (1) year from the date of issuance of final payment for the Work, Contractor warrants that the Work performed under this Agreement conforms to the Contract Documents and is free of any defective equipment, material or workmanship performed by the Contractor or any of its subcontractors or suppliers. Contractor shall promptly replace defective materials and remedy deficient workmanship which shall appear within the one (1) year period and shall pay for any damage to other parts of the Work that results from defective equipment and materials or deficient workmanship. THE FOREGOING REMEDY SHALL BE OWNER'S EXCLUSIVE AND SOLE

**REMEDY AGAINST CONTRACTOR FOR DEFECTIVE EQUIPMENT AND MATERIALS OR
WORKMANSHIP DISCOVERED AFTER FINAL PAYMENT OF THE WORK.**

- 29.1.5 Contractor has received a copy of the Site Specific Work Plan (SSWP) attacher hereto , has read the SSWP in its entirety, is familiar with its content and will perform all Work in accordance with the requirements of the SSWP.

ARTICLE 30. CHANGES TO SPECIAL CONDITIONS

- 30.1 Special Conditions may be modified only by the Owner formally issuing an Addendum.

ARTICLE 31. NOTIFICATIONS OF CITATIONS AND CLAIMS

- 31.1 Contractor shall promptly notify Engineer of any of the following which is connected with any activities, services or operations of Contractor in performing the Work.
- 31.1.1 Any warning, citation, indictment, claim, lawsuit or proceeding issued to or instituted against Contractor, its subcontractors or vendors by any federal, state or local governmental entity or agency.
- 31.1.2 The revocation of any license, permit or other document issued to Contractor, its subcontractors or vendors by any such entity or agency, and
- 31.1.3 Any other claim, including without limitation, claims for workmen's compensation, or lawsuit against Contractor for personal injury, death or property damage.

ARTICLE 32. ORDER OF PRECEDENCE

- 32.1 In resolving any conflicts, errors, and discrepancies among the Contract Documents, the Documents are to be given precedence in the following order:
- | | |
|-----------------------|----------------------------|
| 1. Addendums | 6. Drawings |
| 2. Consent Decree | 7. Instructions to Bidders |
| 3. Special Conditions | 8. Bid Form |
| 4. General Conditions | 9. Agreement |
| 5. Specifications | |

**SITE SPECIFIC WORK PLAN
SOILS REMOVAL ACTIVITIES
FORMER L. A. DARLING FACILITY - NBFF OU2**

I. PURPOSE AND CONDITIONS

The purpose of this Site Specific Work Plan (SSWP) is to set forth requirements for the Soils Removal Activities (impacted soils, including underground sewers, tanks, vaults and sludge) as described in the Final Remedial Investigation (RI) Report dated February 2006 and detailed in the Streamlined Feasibility Study (FS) dated June 2007 for the North Bronson Former LAD Facility OU2, Bronson, Michigan ("NBFF OU2" or "Facility"). The RI and FS reports were prepared pursuant to an Administrative Order by Consent, between L.A. Darling Company (L.A. Darling) and the United States Environmental Protection Agency (U.S. EPA) Docket No. V-W-02-C-699, effective June 5, 2002. The RI Report has been approved by the U.S. EPA and the FS Report is currently under review by the Agency.

The current owner of the NBFF OU2, the City of Bronson, has made a request to Respondent that the impacted soil conditions at the Facility be addressed as soon as possible to the extent necessary to allow for the redevelopment of portions of the Facility for continued commercial/industrial use and to alleviate heavy truck traffic conditions in nearby residential neighborhoods. To address the heavy truck traffic conditions, the City's plan is to extend the existing Railroad Street roadway across a portion of the Facility to divert the traffic away from the nearby residential neighborhoods. Respondent is willing to cooperate with the City in response to its request that the subject impacted soil conditions be remediated now. Respondent accepts the risk that because the soils removal activities are to be performed on a voluntary basis by Respondent and prior to the issuance of a Record of Decision (ROD) for the NBFF OU2 by U.S. EPA, it is possible that the ROD may require additional soil remediation work that is not performed as part of this SSWP.. Subsequent additional soils remediation activities may be required of L.A. Darling by the U.S. EPA upon issuance of the ROD specifying the remediation requirements for both soils and groundwater conditions at the Facility. Respondent agrees that any approval of the SSWP contained herein by the U.S. EPA does not, and is not intended to, constitute any defense to a future demand by the U.S. EPA that

Respondent satisfy any additional requirements of a ROD issued for the NBFF OU2 that have not been addressed by the performance of this SSWP.

The development and successful implementation of the SSWP requires L.A. Darling to:

- establish and maintain site security, support services and utilities, as necessary;
- delineate the horizontal and vertical boundaries, the total volumes and chemical characteristics of the contaminated soils areas in the field, in order to retain a qualified remediation contractor on a cost-effective basis utilizing a performance-based contract and project specifications;
- remove contaminated soils, including underground sewers, tanks, vaults and sludge, where required;
- to securely stage excavated soils and other wastes, including debris from underground sewers, tanks, vaults and sludge pending off-site disposal;
- to properly characterize and transport excavated soil and wastes for off-site disposal;
- provide remediation verification sampling utilizing an approved, uniformly spaced, series of sample locations along the perimeter and bottom of the excavated areas and chemical analysis of the contaminants of concern (COCs) as the soil removal action progresses;
- adopt and implement a restoration plan for soil removal areas (backfilling, grading, re-vegetation, erosion control and replacement of Railroad Street;
- and to provide the regulatory agencies with monthly status reports and a Final Report detailing the Contaminated Soils Removal Activities undertaken by L.A. Darling at the Facility.

In addition, the SSWP shall be performed in accordance with the previously approved RI/FS Site Health and Safety Plan and Quality Assurance Project Plan for the Facility. The remediation contractor retained by L.A. Darling shall be required to prepare a site specific Site Health and Safety Plan for its actions.

Respondent agrees to pay the U.S. EPA's Future Oversight Costs incurred for overseeing the Respondent's performance of the SSWP. For purposes of this SSWP, Future Oversight Costs" shall mean all direct and indirect costs, that the United States incurs upon the approval of this SSWP in reviewing plans, reports, technical memoranda and other items and in overseeing the work performed pursuant to the approved SSWP, verifying the Work, or otherwise overseeing this SSWP, including but not limited to, payroll costs, contractor costs (including fees), travel costs, and laboratory costs. Payment shall be submitted in accordance with the directions provided by the U.S. EPA in the bill of costs to be provided to Respondent along with the customary U.S. EPA summary of the Future Oversight costs incurred but said payment shall not be due in less than thirty days from the date of receipt of such bill of costs.

The U.S. EPA has designated Terese A. VanDonsel, of the Superfund Division, as its Remedial Project Manager (RPM) for the NBFF OU2. L.A. Darling shall direct all submissions described in the SSWP to the RPM at U.S. EPA Region 5, 77 W. Jackson Blvd., SR-6J, Chicago, IL 60604, by certified or express mail. L.A. Darling shall also send copies of all submissions to Deborah Larson, Project Manager, Superfund Section, Michigan Department of Environmental Quality, Constitution Hall, 3rd Floor South, 525 West Allegan Street, Lansing, MI 48909.

L.A. Darling has designated Raymond J. Avendt, Ph.D. PE, as the Project Coordinator, who shall be responsible for administration of all of the Respondent's actions required under the SSWP. Correspondence to the Project Coordinator shall be c/o The Marmon Group, LLC, 181 West Madison Street, 26th Floor, Chicago, IL 60602.

II. SCOPE

The tasks to be completed as part of the contaminated soils, including underground sewers, tanks, vaults and sludge removal activity are:

Task 1. Establish and Maintain Facility Access and Security

Task 2. Delineate and Characterize Contaminated Soils Removal Areas

- Task 3. Contaminated Soils Removal Actions
- Task 4. Facility Soils Remediation Verification Program
- Task 5. Facility Restoration Program
- Task 6. Progress Reports, Project Meetings and Regulatory Liaison
- Task 7. Final Project Report

TASK 1: ESTABLISH AND MAINTAIN FACILITY ACCESS AND SECURITY

It is the intent of L.A. Darling to place a mobile trailer containing office space and laboratory sample preparation area, within the Facility fenced boundaries to serve as project support facilities during the contaminated soils removal activities. Necessary utilities will be connected to the mobile trailer for power, telephone, water and waste disposal. The project support facilities will be functional soon after the delineation of the areas of contaminated soils in the field, meetings with prospective remediation contractors and isolation of municipal utilities traversing the existing Railroad Street right-of-way.

L.A. Darling will require the Remediation Contractor to contract, within 10 days of the effective date of the Notice To Proceed; with a local security firm to provide drive-by inspection services for the Facility perimeter fencing, project trailer and equipment on a twenty-four hour per day basis, when there is no activity at the site. Additional access gates will be installed on both the eastern and western boundaries of the existing Railroad Street right-of-way to improve site safety and traffic patterns. The site security shall be maintained during the excavation and removal of the contaminated soils from the Facility. At the completion of the removal of the contaminated soils activities, new perimeter fencing shall be installed along the northern and southern limits of the existing Railroad Street right-of-way to isolate the remaining portions of the Facility from public access.

TASK 2: DELINEATE AND CHARACTERIZE SOILS REMOVAL AREAS

L.A. Darling has prepared both a RI and FS investigating and detailing the extent of impacted soils,

including underground sewers, tanks, vaults and sludge at the Facility. This extent of contamination was based on the analysis of soils samples obtained from random sampling of areas within a uniform grid across the 2-acre Facility at multiple depths above the groundwater table. The extent of contamination was identified by comparing soil sample analytical data with the January 23, 2006 MDEQ Generic Cleanup Criteria and Screening Levels for industrial land use. The unsaturated soils at the Facility contained various chlorinated volatile organics (TCE; 1, 1-dichloroethene and cis-1, 2-dichloroethene), metals and cyanide at greater than applicable regulatory criteria.

The general locations of the impacted soils at the Facility are in the Former Chemical Staging Area (2,700 cubic yards), Lead Hot Spot (70 cubic yards); Contaminated Structures (concrete slabs, underground vaults, tank and sewers) in the Abandoned Railroad Street (1,700 cubic yards) and the TCE Degreaser and Sludge Lagoon Area (3,000 cubic yards). Detailed descriptions of the impacted soils are presented in the RI and FS. The SSWP proposes to delineate the following areas of impacted soils in the field at their widest horizontal extent in order to facilitate the remediation contractors' pre-bid inspection of the Facility and to isolate the areas in accordance with the Site Health and Safety Plan requirements:

- **Former Chemical Materials Staging Area.** This area encompassing the location of the former chemical materials storage is generally defined by a 100 ft. wide by 120 ft. in length area in the north east corner of the facility. Both inorganic (lead and arsenic) and organic (TCE) impacts are evident in concentrations exceeding the applicable standards. The contamination was detected in both the 0-2 feet and 2-6 feet bgs samples. No impacts above applicable standards were detected in the soils samples between 6-10 feet bgs. The estimated volume of impacted soil (based on an average excavation depth of 6 feet bgs) is 2,700 cubic yards for the FS evaluation of remedial action alternatives. The majority of the surface in the former chemical storage area is unpaved. See FS Drawings 2 and 3 for the location of the former chemical materials staging area.
- **Lead Hot Spot.** This area is defined by SB55 and is located in the center of the northern portion of the facility. This unsaturated soil in grid H4 of Lot 46 requires remediation to a depth of 2 feet, based on the 0-0.5 ft bgs soil sample with lead exceeding the direct contact criterion. The hotspot is beneath approximately six inches of concrete. The lateral extent of the lead soil impacts was defined by additional soil samples and represents an area 30 feet square or approximately 70 cubic yards of contaminated soil, based on an average excavation depth of 2 feet bgs.

- **Contaminated Structures in the Abandoned Railroad Street** (concrete slabs, underground vaults, tank and sewers). The contaminated structures areas of the facility are characterized by metals and TCE detected in samples of the sediment within the sewer pipelines and manholes located beneath the Abandoned East Rail Road Street right of way; i.e. row J of the RI sampling grid, the contents of the two underground vaults and the UST. The soils removal activities require that the liquid contents of the two underground vaults used as equalization chambers integral to the sewer system and the contents of the UST be removed and disposed of in accordance with applicable regulations. It is proposed that the UST be removed together with any impacted soils pursuant to the MDEQ UST program closure regulations. It is estimated that the 231 lineal feet of the industrial and parallel storm sewer, associated junction boxes, manholes and any surrounding contaminated soils (FS Drawing 1, Abandoned East Rail Road Street Utilities Plan and Profile) have a total volume of 1,700 cubic yards of contaminated materials, based on an average excavation depth of 10 feet.
- **Former TCE Degreaser and Sludge Lagoon Area.** This area is the location of the former TCE degreaser tank, plating strip tank and a reported former plating waste sludge lagoon. This impacted unsaturated soil area is in the south eastern portion of the facility. Soil impacts associated with organics (TCE; 1, 1-DCE; cis-1, 2-DCE), metals (arsenic, cadmium, copper and lead), and cyanide at concentrations greater than the applicable criteria characterize the area. Colored layers of hardened sludge in the former lagoon area are present at 7 -8.5 bgs. This area is centered on MW-4 and is approximately 90 feet wide by 90 in length based on additional soil samples taken to further define the extent of chlorinated solvent impacts. The estimated volume of contaminated soil including sludge is 3,000 cubic yards, based on an average excavation depth of 10 feet. See FS Drawings 2 and 3 for the location of the former TCE degreaser tank, plating strip tank and lagoon sludge areas. This area currently has a vegetative cover.

L.A. Darling proposes to continue to use the same consultant for the remediation verification sampling (ASI) and laboratory (Clayton Group Services) as were used during the RI. The QAPP and HSP documents, previously submitted for these firms to perform field soil sampling and laboratory services for the NBFF OU2; have been approved by the U.S. EPA. The same QA/QC procedures established for the RI data collection and/or analysis shall be followed by both the field sampling team members and the laboratory. Upon request by U.S. EPA, Respondent agrees to allow U.S. EPA or its authorized representatives to take split and/or duplicate samples of any samples collected by Respondent or their contractors or agents. Respondent will notify U.S. EPA not less than 10 business days in advance of any sample collection activity not identified on the SSWP and/or

monthly schedule updates. L.A. Darling agrees that U.S. EPA shall have the right to take any additional samples that it deems necessary. The SSWP includes a schedule, which identifies timing for initiation and completion of all tasks to be undertaken as part of the Facility Soils Remediation Verification Program.

TASK 3: SOILS REMOVAL ACTIONS

L.A. Darling will conduct the soils removal activities according to the U.S. EPA approved scope of work and schedule. L.A. Darling will coordinate activities with U.S. EPA's RPM. L.A. Darling will not commence or undertake any removal actions without prior U.S. EPA approval. L.A. Darling will remove contaminated soils, including underground sewers, tanks, vaults and sludge exceeding the applicable standards for the COC's. The excavated soil and other materials shall be securely staged prior to off-site disposal. L.A. Darling will provide the RPM with all field and laboratory data obtained during the removal actions. The excavated waste and soil will be properly characterized and transported for off-site stabilization and disposal. The excavated material shall be disposed of in compliance with the U.S. EPA Off-Site Rule, 40 CFR 300.440, 58 Fed. Reg. 49215 (September 22, 1993).

Within 30 days of the approval of the SSWP, L.A. Darling will submit to the RPM (and other U.S. EPA personnel, if requested) a set of proposed Contract Documents including drawings and specifications for the negotiation and award of a contract with a qualified Remediation Contractor for the excavation, transport, off-site stabilization and secure landfill disposal of the excavated soils and other materials removed from the Facility.

The estimated in place volume of impacted soils and other materials to be removed from the Facility is less than 7,500 cubic yards or 11,250 tons. This amount of material is more economically stabilized off-site. The volume of truck traffic is estimated to be less than 375 trucks leaving the site, subject to confirmation of the load limits on the local streets adjacent to the Facility. Traffic to and from the Facility would be required to use Matteson Street to minimize exposure to residential areas. Excavation of the impacted material at the Facility site would progress starting with the former

chemical materials staging area, lead hot spot and former TCE degreaser and sludge lagoon area. Excavated soils and materials from these areas would be stockpiled in the Railroad Street right-of-way for chemical profiling and loading prior to off-site transportation and disposal. The last area to be excavated would be the impacted soils and other materials within the Railroad Street right-of-way, progressing from east to west.

The excavation limits will be shown on contract drawings indicating the depth of the impacted area and elevation of the underlying native soils. The exposed excavation area would be limited and covered at the end of the workday and weekends. Remediation actions would be limited to daylight hours and subject to noise abatement, air monitoring and health and safety procedures approved by the RPM. In this manner, the remediation contractor would be retained on a performance contract basis and given the anticipated limits of the excavation, regulatory requirements and schedule. Payment would be on a unit price basis for in-place volume of material removed from the site, subject to a 10% retainage. In the event that the actual bid volume is plus or minus 25% of the estimate; the Respondent would reserve the right to renegotiate the contract unit prices. Measurement for payment would be made weekly by a registered surveyor to determine the actual in-place volume of material removed in accordance with the contract documents. Payment to the Remediation Contractor would be on a monthly basis. Restoration activities would not proceed until the Facility soils remediation verification sampling program has been completed in accordance with the approved SSWP.

TASK 4: FACILITY SOILS REMEDIATION VERIFICATION PROGRAM

Verification sampling and chemical analysis shall take place as the removal action progresses. Sampling will be conducted every 30 feet along the perimeter and bottom of the excavated areas. Soil analyses for the COC's are to be conducted in the laboratory. Data validation procedures including duplicate samples, reference samples and, if requested, split samples with the U.S. EPA and off-site laboratories, will be implemented according to the previously approved QAPP.

The depth of the soils removal action will be considered completed at a specific bottom sampling location when the analytical results of two consecutive samples taken in the native underlying soils at a distance of more than 12 inches apart are confirmed to be below the COC applicable standards. The limits of the removal action shall be considered completed on the perimeter samples when the analytical results of two consecutive samples, taken on the midpoint depth of the excavation at a distance more than 12 inches apart into the vertical wall of the excavation, are determined to be less than the COC applicable standards.

The anticipated numbers of verification samples, per area of soils removal activities, are listed below; according to the proposed geometry of the excavations:

- **Former Chemical Materials Staging Area-** 100 ft. wide by 120 ft. long and 6 ft. depth; 14 sidewall sample locations with minimum 2 vertical wall samples each (one at wall surface and one 12 inches deeper into the wall). 12 bottom sample locations with minimum of 2 horizontal samples each (one at floor of excavation and one 12 inches deeper into the floor). 52 total samples minimum.
- **Lead Hot Spot-** 30 ft. wide by 30 ft. long and 2 ft. depth; 4 sidewall sample locations with minimum 2 vertical wall samples each (one at wall surface and one 12 inches deeper into the wall). 12 bottom sample locations with minimum of 2 horizontal samples each (one at floor of excavation and one 12 inches deeper into the floor). 10 total samples minimum.
- **Contaminated Structures in the Abandoned Railroad Street-** 20 ft. wide by 230 ft. long and 10 ft. depth; 16 sidewall sample locations with minimum 2 vertical wall samples each (one at wall surface and one 12 inches deeper into the wall). 7 bottom sample locations with minimum of 2 horizontal samples each (one at floor of excavation and one 12 inches deeper into the floor). 46 total samples minimum.
- **Former TCE Degreaser and Sludge Lagoon Area-** 90 ft. wide by 90 ft. long and 10 ft. depth; 9 sidewall sample locations with minimum 2 vertical wall samples each (one at wall surface and one 12 inches deeper into the wall). 9 bottom sample locations with minimum of 2 horizontal samples each (one at floor of excavation and one 12 inches deeper into the floor). 36 total samples minimum.

A site map for the Facility shall be maintained on-site in the project trailer showing the results of the field verification sampling, sample locations cleared to date and areas requiring further excavation

beyond that shown on the contract drawings. The site map will be updated on a weekly basis and reflect the progress of the removal activities. At the end of the Facility verification program activities, the site map will be incorporated into a set of As-Remediated Soils Facility Site record drawings for submission to the RPM.

TASK 5: FACILITY RESTORATION PROGRAM

The Facility Restoration Program shall include backfilling, grading, re-vegetation, erosion control activities within the limits of the excavated areas and the extension of Railroad Street. The backfilling of the excavated areas of the Facility shall be limited to the amount required to promote gravity drainage of the Facility and eliminate standing water. Subject to field verification and the actual depths of excavation, the grading of the Facility will allow surface runoff to flow to the existing storm water sewers surrounding the Facility. The construction of Railroad Street asphalt pavement, curbs and gutters will be to the specifications of the Branch County Road Commission. The existing chain-link fencing surrounding the Facility will be relocated along the Railroad Street right-of way in order to restrict access to the remaining north and south portions of the Facility.

TASK 6: PROGRESS REPORTS, PROJECT MEETINGS & REGULATORY LIAISON

Respondent will submit a monthly written Progress Report to U.S. EPA RPM concerning actions undertaken pursuant to the SSWP, beginning 30 calendar days after the date of the U.S. EPA's approval of the SSWP, until termination of the Soils Removal Activities, unless otherwise directed in writing by the RPM. These reports shall describe all significant developments during the preceding period, including the work performed and any problems encountered, analytical data received during the reporting period, and developments anticipated during the next reporting period, including a schedule of work to be performed, anticipated problems, and planned resolutions of past or anticipated problems.

Project Meetings will be scheduled every two weeks, starting with the start of the Soils Removal Activities and the Facility Verification Program, and continuing to the end of the Site Restoration

Program. These on-site activities are scheduled to start October 1, 2007 and be completed within 6 months, as described in more detail in the schedule set forth in Section III below. The Project Meetings shall be held in the project trailer located on-site. Minutes of the meetings shall be recorded and upon request, submitted to the RPM for review.

Contact with the representatives of the U.S. EPA, to respond to comments and provide requested information, shall be maintained by the Project Coordinator. Questions from the general public, political officials and adjacent property owners shall be directed to the City of Bronson, the owner of the facility. The project personnel of the sampling team, engineering consultants, remediation contractor, restoration contractor and others retained by L.A. Darling to complete the obligations contained in the SSWP shall be directed to refer all questions received concerning the Soils Removal Activities to the Project Coordinator. The overall duration of the on-site activities associated with the above tasks is scheduled to be six months.

TASK 7: FINAL PROJECT REPORT

Within 60 calendar days of the completion of all removal actions required under the SSWP, L.A. Darling will submit to U.S. EPA a Final Report summarizing the Soils Removal Activities. The Final Report shall conform to the requirements set forth in Section 300.165 of the National Contingency Plan (NCP). The Final Report shall include:

1. **Executive Summary** - The Executive Summary shall provide a general overview of the contents of the Final Project Report. It shall contain a brief discussion of the Facility, the results of all sampling and analyses performed, quantities and types of all materials removed, discussions of the removal options considered for those materials, a listing of the destinations of those materials, remediation verification procedures, restoration activities and a tabulation of the total costs incurred.
2. **Soils Removal Activities** - A presentation of the soils removal actions shall be included in the Final Report. The scope and detail of the removal actions including listing of soils and waste materials removed, the stabilization procedures and the ultimate disposal destinations for those materials will be presented. Copies of all manifests, transportation records, stabilization data, waste profiles and analytical data will be included.
3. **Site Remediation Verification Program** - A discussion of the protocols and analytical

results of the verification program will be included together with all analytical results. Drawings representing the extent of the remediation and location of all verification samples will be presented.

4. **Site Restoration Program** - The scope and detail of the restoration program for the Facility will be presented with specific data concerning the backfilling operations, grading, storm water management and site drainage, re-vegetation activities, extension of Railroad Street and the intended use of the remediated property by the Owner.

The Final Report will also include the following certification signed by the Project Coordinator, who supervised and directed the preparation of the Final Report:

"Under penalty of law, I certify that, to best of my knowledge, after appropriate inquiries of all relevant persons involved in the preparation of this report, the information submitted is true, accurate and complete".

III. SCHEDULE

The schedule for the start date, duration and completion times for the specific work tasks contained in the SSWP and summarized below. A detailed time scale logic diagram or Gantt Chart, indicating each work task, internal milestones, critical activities, filed sampling dates, progress meetings, deliverables of draft and final reports will be prepared.

A preliminary schedule for each of the work tasks is presented below assuming the effective date of the approval of the SSWP is Order is 9/15/2007:

<u>Task</u>	<u>Start Date</u>	<u>Duration, days</u>	<u>Completion Date</u>
Submittal SSWP	8/28/2007	1	8/31/2007
Approval by U.S. EPA	9/1/2007	15	9/15/2007
1. Est. & Maintain Site Security	9/16/2007	15	10/1/2007
2. Delineate & Characterize Soils	9/16/2007	20	10/5/2007
3. Impacted Soils Removal	10/15/2007	75	12/31/2007
4. Remediation Verification	10/15/2007	75	12/31/2007
5. Facility Restoration	11/15/2007	135	4/1/2008

6. Progress Reporting, Meetings	10/1/2007	Bi-monthly	4/1/2008
7. Final Project Report	4/1/2008	60	6/1/2008

IV. HEALTH AND SAFETY PLAN

Specific Health and Safety Plans were previously submitted for the RI field sampling activities L.A. Darling's shall require that the Remediation Contractor prepare a Health and Safety Plan (HSP) for the SSWP work which is designed to protect on-site personnel, area residents and nearby workers from physical, chemical and all other hazards posed by the site sampling, remediation and verification activities. The HSP will present the performance levels and criteria necessary to address the following areas:

- General requirements
- Personnel
- Levels of protection
- Safe work practices and safe guards
- Medical surveillance
- Personal and environmental air monitoring
- Personal hygiene
- Decontamination - personal and equipment
- Site work zones
- Contaminant control
- Contingency and emergency planning (including response to fires/explosions)
- Logs, reports and record keeping

The Remediation Contractor's HSP shall, at a minimum, follow U.S. EPA guidance document Standard Operating Safety Guides (Publication 9285.1-03, PB92-963414, June 1992), and all applicable OSHA requirements as outlined in 29 CFR 1910.

V. QUALITY ASSURANCE PROJECT PLAN

All sampling and analyses performed pursuant to the SSWP for the Facility shall conform to U.S. EPA direction, approval and guidance regarding sampling, quality assurance/quality control

(QA/QC), data validation, and chain of custody procedures. L.A. Darling shall ensure that the laboratory used to perform the analyses participates in a QA/QC program that complies with U.S. EPA guidance. The proposed laboratory contractor for the Site Characterization and Remediation Verification Tasks and to conduct the Air Monitoring Plan is Clayton Group Services, Inc. Novi, MI. (Clayton). Clayton is a documented participant in a QA/QC program that is in full compliance with U.S. EPA guidance. A copy of the Clayton Quality Assurance Project Plan, dated February 12, 2003 will be forwarded to the RPM under separate cover.

Upon request by U.S. EPA, L.A. Darling will have Clayton analyze samples submitted by U.S. EPA for quality assurance monitoring. L.A. Darling will provide to U.S. EPA the quality assurance/quality control procedures followed by ASI and Clayton in performing data collection and analysis. L.A. Darling will also ensure that analytical tracking information is consistent with OSWER Directive No. 9240.0-2B," Extending the Tracking of Analytical Services to PRP-Lead Superfund Sites ".

Upon request of U.S. EPA, L.A. Darling agrees to allow U.S. EPA or its authorized representatives to take split and/or duplicate samples collected by L.A. Darling, its contractors or agents while performing the SSWP. L.A. Darling will notify U.S. EPA not less than 3 business days in advance of the commencement of sample collection activity. L.A. Darling agrees that U.S. EPA has the right to take any additional samples that it deems necessary.

VI. AIR MONITORING PLAN FOR PERSONNEL AND SITE PERIMETER

An Air Monitoring Plan (AMP) for the protection of personnel and the Facility perimeter has been developed specifically for the implementation of the SSWP. The AMP considers the site specific features of the Facility and describes in detail the perimeter, exclusion zone, and support zone air monitoring strategies, sampling instrumentation devices, weather instruments, calibration methods and schedules, action levels, site figures, and other pertinent information required for the implementation of the SSWP. The on-site activities of the AMP will be conducted by personnel from Clayton Group Services and reviewed by the on-site Health and Safety Program Officer.

Real-time and time-weighted ambient air sampling will be conducted for the purpose of protecting human health on-site and off-site during the remediation contractor's mobilization, site set-up, and soil excavation activities. Potential off-site receptors include the residential neighborhood adjacent to the Facility. On-site receptors include L.A. Darling's contractors, consultants, and any regulatory agency personnel, contractors or representatives authorized to be on-site during the implementation of the SSWP.

A weather station will be erected in the support zone near the project trailer. The station will contain a wind direction indicator and a relative humidity indicator. The wind direction indicator will be used to determine the daily prevailing wind direction. The wind direction indicator will not be equipped with a recording device. The relative humidity indicator will be used to help identify and circumvent potential instrumentation and calibration anomalies that may be the result of humidity.

Time-weighted air sampling will be conducted using personal pumps (either battery operated or electric). The pumps will be calibrated to draw between 2.5 to 3 liters of air per minute. The particulate collection medium will be a micro-pore filter inserted into a collection canister. The sampling pumps will run for up to eight hours per day, depending on weather conditions. Time-weighted air sampling will not be conducted during rain events. The filters will be analyzed for total lead using X-ray fluorescence, in accordance with US EPA SW846 Method 6200.

Real-time air monitoring (RAM) will be conducted using a RAM meter. The RAM meter measures only total particulate in air. A baseline RAM meter readout of total particulate in air will be equated to total lead in air, as provided by the results of baseline sampling (described below). RAM will not be conducted during rain events.

Baseline time-weighted perimeter air monitoring will be conducted prior to the disturbance of the site surface by heavy equipment. Baseline samples will be collected at four locations around the site (three downwind and one upwind). At each location, two concentrations will be measured: 1) the concentration of total particulate per volume air and, 2) the concentration of lead per volume of air.

The time-weighted sampling results will provide a baseline concentration of lead in air, and will also be used to interpret the RAM meter readouts by equating the concentration of lead in air with the concentration of total particulate in air.

Perimeter air monitoring will be conducted at the perimeter of the site for the purpose of: 1) identifying if the perimeter (residential) action level is being exceeded using a RAM meter, and 2) tracking the air quality using time-weighted data. The airborne particulate concentrations will be measured at the top of the site perimeter fence. The samples will be collected with canisters facing toward the site. Three downwind sampling locations and one upwind sampling location will be identified each day, based on the prevailing wind direction.

Exclusion zone air monitoring will be conducted using a RAM meter for the purpose of identifying if the on-site (worker) action level for lead is being exceeded. The airborne particulate concentrations in the breathing zone (or as close to the breathing zone as is reasonable) of the worker closest to the excavation face or work area (whichever is applicable) will be measured for a minimum of three minutes at 120-minute intervals, as well as at a worker's request, and at the discretion of the on-site Health and Safety Program Officer. VOC concentrations will be monitored and recorded in the exclusion zone using a photo-ionization meter.

Action levels will be determined for perimeter and exclusion zone monitoring. Action levels for the exclusion and support zones (industrial action level) will be based on US EPA recommendations and pertinent guidance provided by the National Institute of Occupational Safety and Health (NIOSH), the Occupational Safety and Health Administration (OSHA), the American Conference of Governmental Industrial Hygienists (ACGIH), as applicable.

Facility control actions to minimize the dispersion of airborne particulate will consist of wetting exposed on-site soil using a water truck. This action will be conducted on an as-needed basis, as determined by the on-site Health and Safety Program Officer, the Remediation Contractor, or as requested by the U.S. EPA. At the end of each workday, the excavation face and any stockpiled

excavated soil will be covered using visqueen or tarps. The use of visqueen or tarps is expected to be adequate to control the dispersion of particulate by wind.

Daily documentation will be maintained using a Daily Air Monitoring Program Log Sheet. The daily log sheets will be completed and maintained by the on-site Air Program Officer. The AMP will include a blank Daily Air Monitoring Program Log Sheet. Information documented will include the following:

1. The weather parameters recorded hourly (wind direction, relative humidity);
2. The maximum, minimum, and average exclusion zone RAM meter measurements (total particulate in air equated to total lead in air) recorded at 90-minute intervals;
3. The maximum, minimum, and average perimeter zone RAM meter measurements (total particulate in air equated to total lead in air) recorded at 90-minute intervals;
4. A site map showing perimeter sampling locations for that day, and an arrow indicating prevailing wind direction;
5. Time-weighted average pumps and RAM meter calibration summary information; and
6. Other pertinent information that may impact air sampling results, such as the onset of a rain event, equipment breakdown that results in work stoppage and tarping the excavation face, etc.

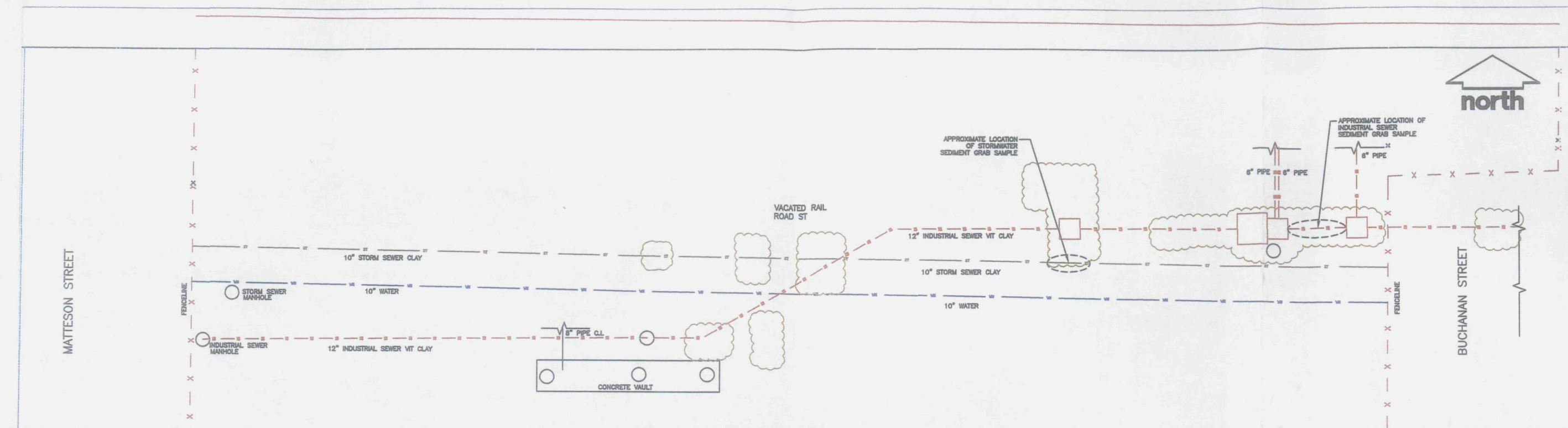
Time-weighted average lead results will be recorded on the Daily Air Monitoring Program Logs as the results are received from the laboratory.

The response actions will be described in the AMP. In the event of sustained action level exceedances on-site, the Air Program Officer will immediately notify both the U.S. EPA RPM and the Remediation Contractor. On-site response actions may include, but may not be limited to:

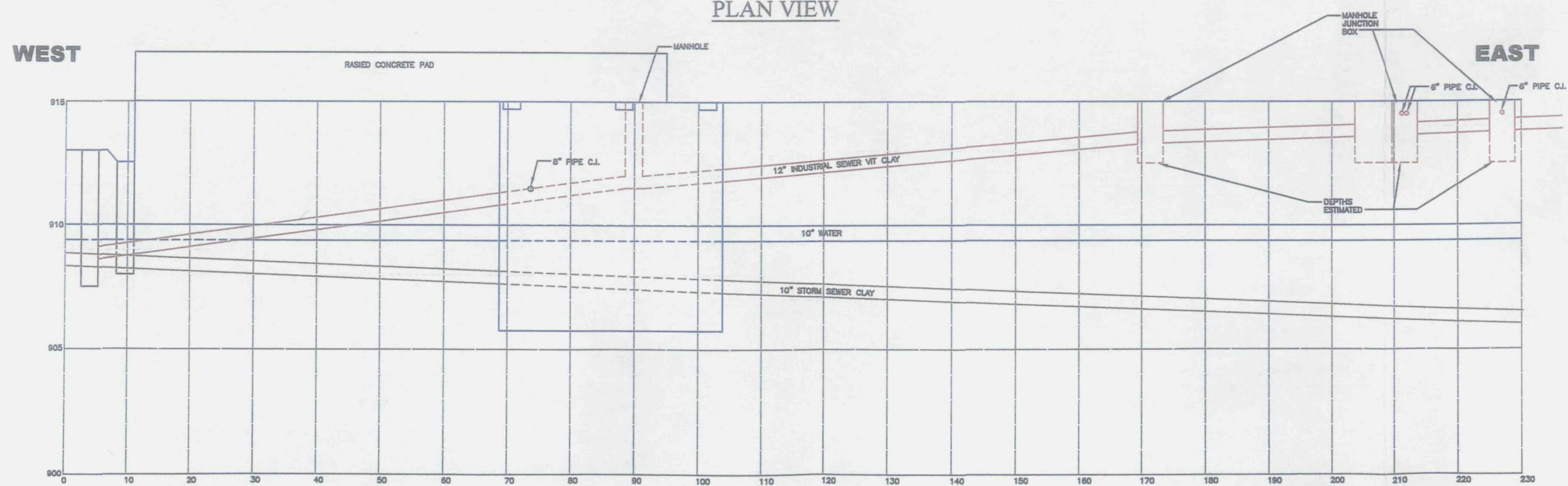
1. Wet exposed contaminated soil.
2. Conduct continuous air monitoring at the exclusion zone air monitoring location using a RAM meter until the concentration is less than the on-site action level for at least five consecutive minutes.
3. If the concentration does not fall below the action level for five consecutive minutes, upgrade the worker level of PPE.
4. Follow the contingency plan for exposure to airborne lead, as specified in the Remediation Contractor's HSP.

In the event of sustained action level exceedances at the site perimeter sampling stations, the Health and Safety Program Officer will immediately notify both the U.S. EPA RPM and the Remediation Contractor. Response actions may include, but may not be limited to:

1. Stop all on-site earth moving equipment.
2. Wet exposed soil (contaminated and uncontaminated), and cover with visqueen or tarps exposed stockpiled contaminated soil.
3. Conduct continuous air monitoring at the worst-case of the three downwind perimeter air monitoring stations using a RAM meter until the concentration is less than the perimeter action level for at least 15 consecutive minutes.
4. If the concentration does not fall beneath the perimeter action level within three hours after completion of items 1 and 2, notify the RPM that work has been temporarily suspended for that day.



PLAN VIEW



PROFILE VIEW

LEGEND:

- APPROXIMATE EXTENT OF EXCAVATION
- VI = VITRIFIED
- CI = CAST IRON
- IS = INDUSTRIAL SEWER
- ST = STORM SEWER
- WM = WATER MAIN
- = MANHOLE
- J, 2 = GRID LOCATION IDENTIFIERS

NOTES:

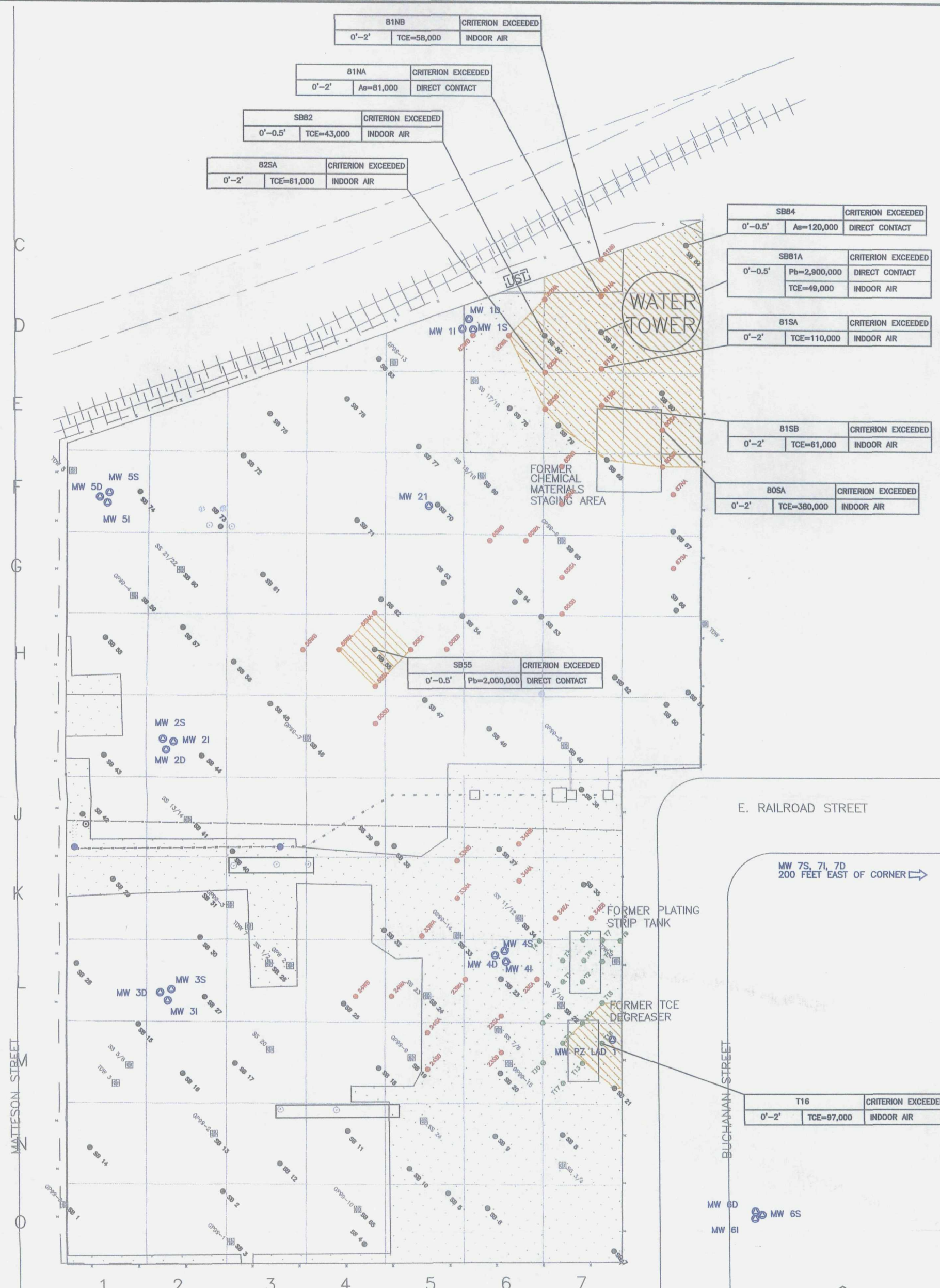
1. FENCE NOT SHOWN ON PROFILE.
2. ELEVATIONS, INVERTS, AND LOCATIONS SHOWN HERE ARE APPROXIMATE.
3. DRAWING DEVELOPED BY MONTGOMERY WATSON HARZA.

HORIZONTAL SCALE:
1" = 10'
SCALE IN FEET
VERTICAL
EXAGGERATION:
2 TIMES

FORMER LAD FACILITY OU2
NORTH BRONSON, MICHIGAN

ABANDONED EAST RAIL ROAD STREET UTILITIES
PLAN AND PROFILE

DRAWING 1



81NB	CRITERION EXCEEDED
0'-2'	TCE=58,000
INDOOR AIR	

81NA	CRITERION EXCEEDED
0'-2'	As=81,000
DIRECT CONTACT	

SB82	CRITERION EXCEEDED
0'-0.5'	TCE=43,000
INDOOR AIR	

82SA	CRITERION EXCEEDED
0'-2'	TCE=61,000
INDOOR AIR	

SB84	CRITERION EXCEEDED
0'-0.5'	As=120,000
DIRECT CONTACT	

SB81A	CRITERION EXCEEDED
0'-0.5'	Pb=2,900,000
DIRECT CONTACT	
TCE=49,000	INDOOR AIR

81SA	CRITERION EXCEEDED
0'-2'	TCE=110,000
INDOOR AIR	

81SB	CRITERION EXCEEDED
0'-2'	TCE=61,000
INDOOR AIR	

80SA	CRITERION EXCEEDED
0'-2'	TCE=380,000
INDOOR AIR	

SB55	CRITERION EXCEEDED
0'-0.5'	Pb=2,000,000
DIRECT CONTACT	

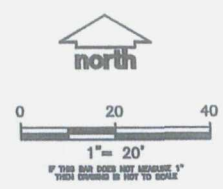
T16	CRITERION EXCEEDED
0'-2'	TCE=97,000
INDOOR AIR	

LEGEND:

- SOIL BORING LOCATION
- PREVIOUSLY-COLLECTED DATA LOCATIONS
- MONITORING WELL
- MANHOLE
- MANHOLE FILLED WITH SOIL
- FENCE
- NOT PAVED
- VAULT
- GRID LOCATION IDENTIFIERS
- HOT SPOT DELINEATION SAMPLING LOCATION
- DEGREASER PIT SAMPLING LOCATION
- INDUSTRIAL SEWER MANHOLE SAMPLING LOCATION

- 0'-2' DEPTH INTERVAL IN FEET (NOTE: INTERVALS VARY, BUT ARE WITHIN 0-2 FEET)
- A DUPLICATE SAMPLE
- As ARSENIC [EXCEEDS DIRECT CONTACT CRITERION OF 37,000 ug/kg]
- Pb LEAD [EXCEEDS DIRECT CONTACT CRITERION OF 800,000 ug/kg(DRAFT)]
- TCE TRICHLOROETHENE [EXCEEDS SOIL VOLATILIZATION TO INDOOR AIR INHALATION CRITERION OF 37,000 ug/kg]
- ESTIMATED AREA FOR SOIL REMEDIATION AT 0-2 FEET DEPTH INTERVAL

NOTES:
1. ONLY CONCENTRATIONS THAT EXCEED CRITERIA ARE SHOWN. ALL CONCENTRATIONS ARE IN ug/kg.
2. MICROGRAMS PER KILOGRAM (ug/kg).



FORMER LAD FACILITY OU2
NORTH BRONSON, MICHIGAN

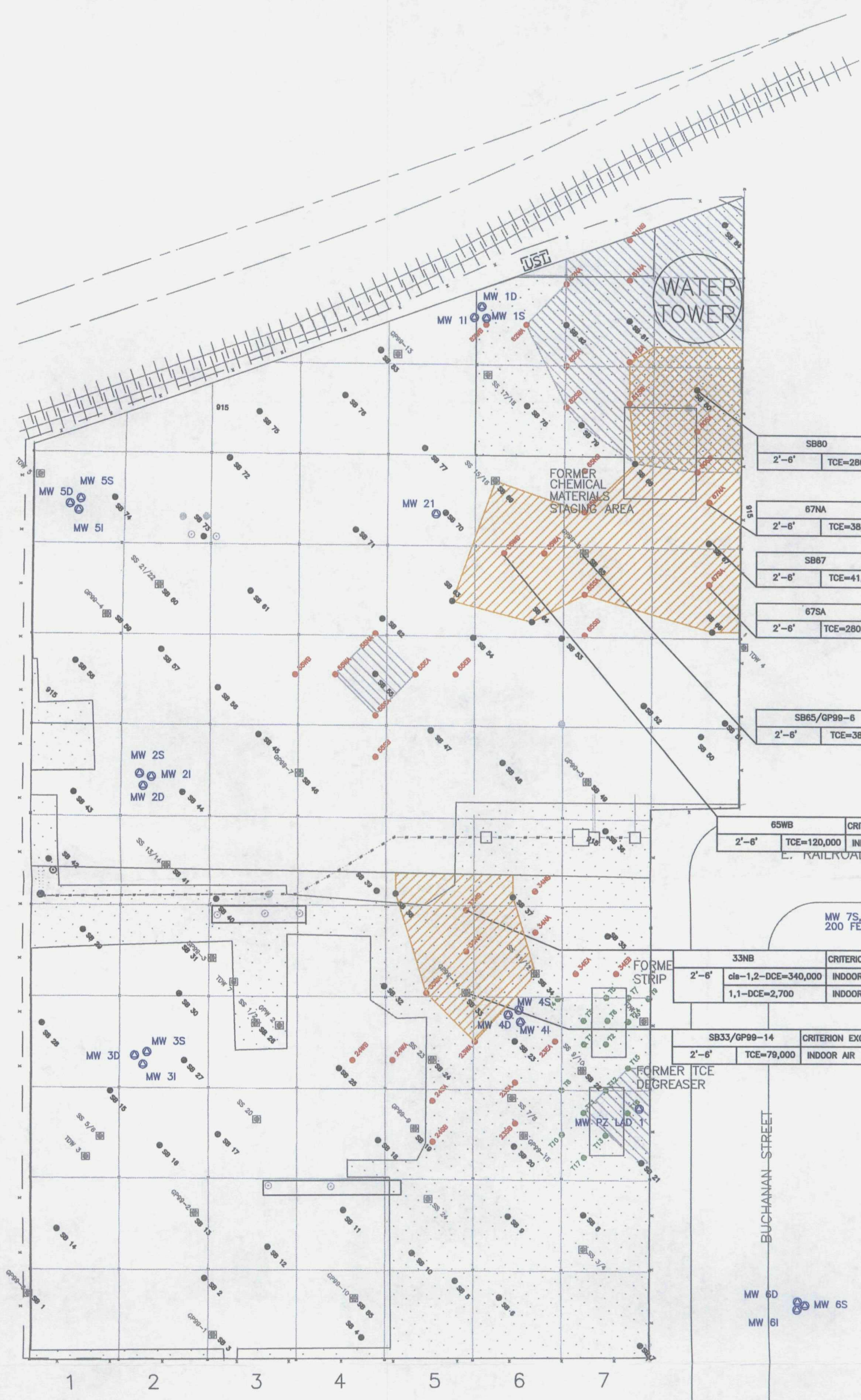
VOLATILE ORGANICS AND METALS IN SOIL
SAMPLING INTERVAL 0-2 FEET BELOW GRADE

DRAWING 2

C
D
E
F
G
H
J
K
L
M
N
O

MATTESON STREET

BUCHANAN STREET



SB80	CRITERION EXCEEDED
2'-6'	TCE=280,000 INDOOR AIR

67NA	CRITERION EXCEEDED
2'-6'	TCE=38,000 INDOOR AIR

SB67	CRITERION EXCEEDED
2'-6'	TCE=41,000 INDOOR AIR

67SA	CRITERION EXCEEDED
2'-6'	TCE=280,000 INDOOR AIR

SB65/GP99-6	CRITERION EXCEEDED
2'-6'	TCE=38,000 INDOOR AIR

65WB	CRITERION EXCEEDED
2'-6'	TCE=120,000 INDOOR AIR

33NB	CRITERION EXCEEDED
2'-6'	cis-1,2-DCE=340,000 INDOOR AIR
	1,1-DCE=2,700 INDOOR AIR

SB33/GP99-14	CRITERION EXCEEDED
2'-6'	TCE=79,000 INDOOR AIR

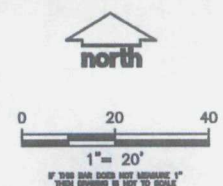
- LEGEND:**
- SOIL BORING LOCATION
 - PREVIOUSLY-COLLECTED DATA LOCATIONS
 - MONITORING WELL
 - MANHOLE
 - MANHOLE FILLED WITH SOIL
 - FENCE
 - HOT SPOT
 - VAULT
 - GRID LOCATION IDENTIFIERS
 - HOT SPOT DELINEATION SAMPLING LOCATION
 - DEGREASER PIT SAMPLING LOCATION
 - INDUSTRIAL SEWER MANHOLE SAMPLING LOCATION

- 2'-6'** DEPTH INTERVAL IN FEET (NOTE: INTERVALS VARY, BUT ARE WITHIN 2-6 FEET)
- A DUPLICATE SAMPLE
 - Pb LEAD [EXCEEDS DIRECT CONTACT CRITERION OF 900,000 ug/kg (DRAFT)]
 - TCE TRICHLOROETHENE
 - cis-1,2-DCE CIS-1,2-DICHLOROETHENE [EXCEEDS SOIL VOLATILIZATION TO INDOOR AIR INHALATION CRITERION OF 41,000 ug/kg]
 - 1,1-DCE 1,1-DICHLOROETHENE [EXCEEDS SOIL VOLATILIZATION TO INDOOR AIR INHALATION CRITERION OF 330 ug/kg]
- ESTIMATED AREA FOR SOIL REMEDIATION AT 0-2 FEET DEPTH INTERVAL
- ESTIMATED AREA FOR SOIL REMEDIATION AT 2-6 FEET DEPTH INTERVAL

NOTES:

1. ONLY CONCENTRATIONS THAT EXCEED CRITERIA ARE SHOWN. ALL CONCENTRATIONS ARE IN ug/kg.

2. MICROGRAMS PER KILOGRAM (ug/kg).



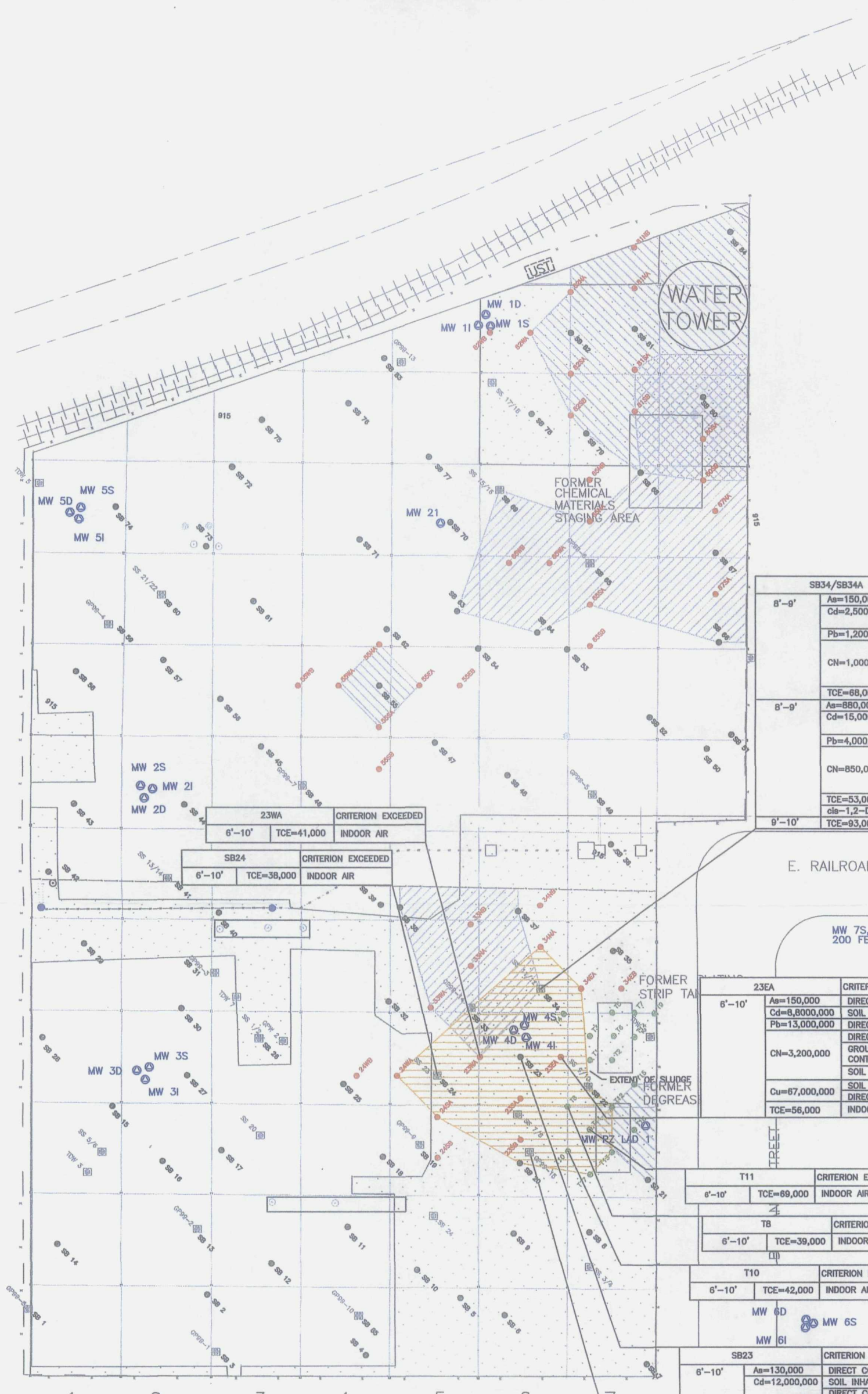
FORMER LAD FACILITY OU2
NORTH BRONSON, MICHIGAN

VOLATILE ORGANICS AND METALS IN SOIL
SAMPLING INTERVAL 2-6 FEET BELOW GRADE

DRAWING 3

C
D
E
F
G
H
J
K
L
M
N
O

MATTESON STREET



SB34/SB34A		CRITERION EXCEEDED
8'-9'	As=150,000	DIRECT CONTACT
	Cd=2,500,000	SOIL INHALATION
	Pb=1,200,000	DIRECT CONTACT
	CN=1,000,000	DIRECT CONTACT
	TCE=68,000	GROUNDWATER CONTACT PROTECTION
8'-9'	As=880,000	SOIL INHALATION
	Cd=15,000,000	DIRECT CONTACT
	Pb=4,000,000	DIRECT CONTACT
	CN=850,000	DIRECT CONTACT
	TCE=53,000	GROUNDWATER CONTACT PROTECTION
9'-10'	cls-1,2-DCE=51,000	SOIL INHALATION
	TCE=93,000	INDOOR AIR

E. RAILROAD STREET

MW 7S, 7I, 7D
200 FEET EAST OF CORNER →

23EA		CRITERION EXCEEDED
6'-10'	As=150,000	DIRECT CONTACT
	Cd=8,800,000	SOIL INHALATION
	Pb=13,000,000	DIRECT CONTACT
	CN=3,200,000	DIRECT CONTACT
	TCE=56,000	GROUNDWATER CONTACT PROTECTION
6'-10'	Cu=67,000,000	SOIL INHALATION
	TCE=56,000	DIRECT CONTACT

T11		CRITERION EXCEEDED
6'-10'	TCE=69,000	INDOOR AIR

T8		CRITERION EXCEEDED
6'-10'	TCE=39,000	INDOOR AIR

T10		CRITERION EXCEEDED
6'-10'	TCE=42,000	INDOOR AIR

SB23		CRITERION EXCEEDED
6'-10'	As=130,000	DIRECT CONTACT
	Cd=12,000,000	SOIL INHALATION
	Pb=11,000,000	DIRECT CONTACT
	CN=4,200,000	DIRECT CONTACT
	TCE=180,000	GROUNDWATER CONTACT PROTECTION
6'-10'	Cu=67,000,000	SOIL INHALATION
	TCE=180,000	DIRECT CONTACT

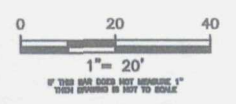
GP99-15		CRITERION EXCEEDED
8'-10'	TCE=47,000	INDOOR AIR

LEGEND:

- SOIL BORING LOCATION
- PREVIOUSLY-COLLECTED DATA LOCATIONS
- MONITORING WELL
- MANHOLE
- MANHOLE FILLED WITH SOIL
- FENCE
- NOT PAVED
- VAULT
- GRID LOCATION IDENTIFIERS
- HOT SPOT DELINEATION SAMPLING LOCATION
- DEGREASER PIT SAMPLING LOCATION
- INDUSTRIAL SEWER MANHOLE SAMPLING LOCATION

- DEPTH INTERVAL IN FEET (NOTE: INTERVALS VARY, BUT ARE WITHIN 6-10 FEET)
- A ARSENIC [EXCEEDS DIRECT CONTACT CRITERION OF 37,000 ug/kg]
- Cd CADMIUM [EXCEEDS PARTICULATE SOIL INHALATION CRITERION OF 2,200,000 ug/kg AND DIRECT CONTACT CRITERION OF 4,100,000 ug/kg]
- Pb LEAD [EXCEEDS DIRECT CONTACT CRITERION OF 900,000 ug/kg (DRAFT)]
- CN CYANIDE [EXCEEDS DIRECT CONTACT CRITERION OF 50,000 ug/kg, GROUNDWATER CONTACT PROTECTION CRITERION OF 250,000 ug/kg, AND PARTICULATE SOIL INHALATION CRITERION OF 250,000 ug/kg]
- Cu COPPER [EXCEEDS PARTICULATE SOIL INHALATION CRITERION OF 5,800 ug/kg AND DIRECT CONTACT CRITERION OF 7,300,000 ug/kg]
- TCE TRICHLOROETHENE [EXCEEDS SOIL VOLATILIZATION TO INDOOR AIR INHALATION CRITERION OF 37,000 ug/kg]
- cls-1,2-DCE [EXCEEDS SOIL VOLATILIZATION TO INDOOR AIR INHALATION CRITERION OF 41,000 ug/kg]
- ESTIMATED AREA FOR SOIL REMEDIATION AT 0-2 FEET DEPTH INTERVAL
- ESTIMATED AREA FOR SOIL REMEDIATION AT 2-6 FEET DEPTH INTERVAL
- ESTIMATED AREA FOR SOIL REMEDIATION AT 6 FEET DEPTH TO WATER TABLE INTERVAL

NOTES:
1. ONLY CONCENTRATIONS THAT EXCEED CRITERIA ARE SHOWN. ALL CONCENTRATIONS ARE IN ug/kg.
2. MICROGRAMS PER KILOGRAM (ug/kg).



FORMER LAD FACILITY OU2
NORTH BRONSON, MICHIGAN

VOLATILE ORGANICS AND METALS IN SOIL
SAMPLING INTERVAL 6-10 FEET BELOW GRADE

DRAWING 4

SECTION 01010

SUMMARY OF WORK

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Work summary for the remediation of the Mosaic Tile Plant Dump-Site, Southern Parcel-OU2.
- B. Prior to the Notice to Proceed, Contractor shall have obtained approval for his Site Operations Plan and all elements referred to in that document.

1.2 WORK SEQUENCE

- A. Prior to the inception of the site work, the Contractor shall submit his Site Operations Plan, modify it as necessary and receive approval of the Plan in addition to filing the other necessary paperwork and documentation for the project.
- B. Construct work in phases as indicated in the bid form. The general work and mobilization/site preparation shall proceed any activity associated with the remediation effort. The following stages represent the order of work to be performed at the site once the documentation has been accepted by the Owner:

PHASE I: MOBILIZATION:

- 1. Stabilize and widen existing access roads for construction traffic.
- 2. Construct any required temporary haul roads after the initial survey work.
- 3. Identify underground and overhead utilities and obstacles and stabilize the ground to support the construction road traffic.
- 4. Construct the temporary facilities for personnel, personnel decontamination facilities, parking, etc.
- 5. Construct decontamination pad as detailed.
- 6. Site Security
- 7. Preparation of truck loading area including ground cover, pile cover, area required, transportation to and from stockpile.
- 8. Selection of off-site stabilization and disposal facilities.

PHASE II: REMEDIAL AREA PREPARATION

- 1. Dewater, as necessary, all work areas prior to construction. Reroute site drainage patterns, as necessary. Construct the stormwater management facilities as required by the Drainage and Stormwater Management Plan.
- 2. Survey and stake limits of work as delineated by the Owner or his representative. A benchmark within each contaminated area will be identified by the Owner's field engineer before excavation. At that time a grid system will be created explicitly providing the Contractor with the defined limits of excavation shown in the Site Specific Work Plan (SSWP) Drawings. The contractor is required

to provide a surveyor, licensed in Michigan, to stake the limits shown on the Plan Sheets. The Owner's surveyor will check these limits for accuracy.

3. Clear trees, vegetation and any other debris within the limits of work. Dispose of this material as specified in the Specifications. Construct all erosion and sediment control facilities in conjunction with clearing activities.

PHASE III: EXCAVATION

1. Detail the equipment needed and the procedure(s) to be used to excavate the work area to the limits shown on the SSWP drawings in the Specifications and within the grid established by the Owner's Engineer. Phase III work shall be performed sequentially by work area, proceeding with the Former Chemical Material Staging Area, the Lead Hot Spot, the Former TCE Degreaser and Sludge Lagoon Area and lastly with the Contaminated Soils and Structures in the Abandoned Railroad Street, working east to west across the right of way.
2. Detail verification sampling in conformance with the remedial verification work plan, specified in the Specifications.
3. Method of backfill, sources of borrow, compaction requirements.
4. Stormwater Management
5. Restoration of remediated areas

PHASE IV: STABILIZATION and ULTIMATE DISPOSAL OPERATIONS

The Contractor shall specify the location and process used in the stabilization of the excavated contaminated materials removed from the Site. The conformance with applicable local, state and federal regulations governing the transportation, stabilization and disposal of this material shall be documented to the satisfaction of the Owner and the U. S. EPA.

Data concerning the effectiveness of the stabilization of the contaminated materials shall be submitted to the Owner for approval. The location and operation of the Contractor's proposed landfill for the stabilized materials shall also require approval of the Owner and U.S.EPA.

PHASE VI: RAILROAD STREET RECONSTRUCTION AND DEMOBILIZATION

The Contractor shall reconstruct the previously abandoned Railroad Street in conformance with the specifications contained in the Project Manual, standard details and as directed by the Engineer.

All types of utilities (both above and below ground), surfaces, sidewalks, curbs, gutters, culverts and other features disturbed, damaged or destroyed during the remediation work under or as a result of the operations of the Contract, shall be restored and maintained, as described in the provisions of the Specifications. Those activities shall include:

1. Equipment, decontamination pads and materials used for remediation shall be cleanup/disposal properly.
2. All roads, driveways and similar surfaces that have been disturbed or damaged due to remediation work shall be restored as the original condition.
3. Revegetation

4. Site cleanup

PART 2 PRODUCTS

A. Not Used

PART 3 EXECUTION

- A. The contractor may not proceed into a new work area until the area in which he has been working is remediated. This includes the backfilling and grading. The application of seed shall be on a site wide basis.
- B. Care shall be taken to make sure that remediated areas are protected from contamination by use of additional fencing or other isolation indications. No additional payment will be made for areas recontaminated through the fault of the contractor.

END OF SECTION

Former L.A. Darling Facility

SECTION 01025

MEASUREMENT AND PAYMENT

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Measurement and payment criteria applicable to the Work performed under a unit price payment method.
- B. Payment criteria applicable to the Work performed under a lump sum payment method.
- C. Defect assessment and non-payment for rejected work.

1.2 AUTHORITY

- A. Measurement methods delineated in the individual specification sections are intended to complement the criteria of this section. In the event of conflict, the requirements of the individual specification section shall govern.
- B. The Engineer will take all measurements and compute quantities accordingly.
- C. Assist by providing necessary equipment, workers, and survey personal as required.

1.3 LUMP SUM ITEMS

- A. Furnish all materials, construct and fully complete the Work of the Lump Sum Items, in the Quantities, and to the lines and grade as shown or specified, encountered in the Work, or ordered by the Engineer.
- B. The principal items of work scheduled herein are included under this Section. The work also includes all accessories, appurtenances or other work required for the completion of the Lump Sum Items, except those related to the work of these items and specifically included under other Measurement and Payment sections of the Contract.
- C. The schedules of the work included are shown on solely for the convenience of the Engineer and Contractor and do not necessarily include all of the items of work which are shown and specified and which are required under this Contract.

1.3 UNIT QUANTITIES SPECIFIED

- A. Quantities and measurements indicated in the Bid Form are for bidding and contract purposes only. Quantities and measurements supplied or placed in the Work and verified by the Engineer shall determine payment.
- B. If the actual Work requires more or fewer quantities than those quantities indicated, provide the required quantities at the unit prices contracted.
- C. When the actual quantities of the Work ordered and performed vary by less than fifteen (15) percent from the corresponding quantities for any individual designated area as set out in the completed Bid Form, for any reason, including but not limited to changes in the Drawings or Specifications, the Contractor shall accept, as payment in full, payment at the original contract unit price(s) set forth in the completed Bid Form for the actual quantities of work

done. No other allowance in or adjustment to the Contract Price shall be made. When the actual quantities of work ordered and performed vary by fifteen (15) percent or more from the corresponding quantities in the Bid Form, for any reason, including but not limited to changes in the Drawings or Specifications, the amount of any allowance in or adjustment to the Contract Price shall be determined by Owner in Accordance with General Conditions 11.3(a), (b) or (c).

1.4 MEASUREMENT OF QUANTITIES

- A. Measurement by Volume: Measured by in-place cubic dimension using mean length, width and height or thickness.

1.5 PAYMENT

- A. Payment Includes: Full compensation for all required permits, labor, products, tools, equipment, transportation, off-site treatment and disposal, services and incidentals; erection, application or installation of an item of the Work; overhead and profit.
- B. Final payment for Work governed by lump sum prices will be made for work completed as verified by the Engineer for Work which is incorporated in or made necessary by the Work.
- C. Final payment for Work governed by unit prices will be made basis of actual measurements and quantities verified by the Engineer multiplied by the unit price for work which is incorporated in or made necessary by the Work.

1.6 DEFECT ASSESSMENT

- A. Replace the Work, or portions of the Work, not conforming to specified requirements.
- B. If, in the opinion of the Engineer, it is not practical to remove and replace the Work, the Engineer will direct one of the following remedies:
 - 1. The defective Work may remain, but the unit sum/price will be reduced 50 percent at the discretion of the Engineer.
 - 2. The defective Work will be partially repaired to the instructions of the Engineer, and the unit sum/price will be reduced 50 percent at the discretion of the Engineer.
- C. The authority of the Engineer to assess the defect and identify payment adjustment, is final.

1.7 NON-PAYMENT FOR REJECTED PRODUCTS

- A. Payment will not be made for any of the following:
 - 1. Products wasted or disposed of in a manner that is not acceptable.
 - 2. Products determined as unacceptable before or after placement.
 - 3. Products placed beyond the lines and levels of the required Work.
 - 4. Products remaining on hand after completion of the Work.
 - 5. Loading, hauling and disposing of rejected Products.
- B. No payment will be made for work performed by the Contractor to replace defective work or work which is not shown or ordered or which is outside the limits shown or ordered.

September 2007

Project 61548

Former L.A. Darling Facility
NBFF – OU2

PART 2 PRODUCTS

A. Not Used

PART 3 EXECUTION

A. Not Used

END OF SECTION

SECTION 01027

APPLICATIONS FOR PAYMENT

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Procedures for preparation and submittal of Applications for Payment.

1.2 RELATED SECTIONS

- A. Section 00500 - Agreement: Contract Price and unit prices, amounts of Progress Payments and Retainages, time schedule for submittals.
- B. Section 00700 - General Conditions: Progress Payments and Final Payment.
- C. Section 01028 - Change Order Procedures: Procedures for changes to the Work.
- D. Section 01700 - Contract Closeout: Final Payment.

1.3 FORMAT

- A. Application for Payment including continuation sheets when required.
- B. For each item, provide a column for listing: Item Number; Description of work; Scheduled Value, Previous Applications: Work in Place under this Application: Authorized Change Orders; Total Completed to Date of Application; Percentage of Completion; Balance to Finish; and Retainage.
- C. Use the Engineer's data for determining quantities for unit price items. The Engineer will have data from the previous month's work available by the 10th of the subsequent month.

1.4 PREPARATION OF APPLICATIONS

- A. Present required information on electronic media printout.
- B. Execute certification by signature of authorized officer.
- C. Use data from approved Schedule of Values. Provide dollar value in each column for each line item for portion of work performed.
- D. List each authorized Change Order as an extension on continuation sheet, listing Change Order number and dollar amount as for an original item of Work.
- E. Prepare Application for Final Payment as specified in Section 01700.

1.5 SUBMITTAL PROCEDURES

- A. Submit three copies of each Application for Payment to Engineer.
- B. Submit an updated construction schedule with each Application for Payment.

C. Payment Period: Submit at monthly intervals.

D. Submit under transmittal letter.

1.6 SUBSTANTIATING DATA

A. When Engineer requires substantiating information, submit data justifying dollar amounts in question.

B. Provide one copy of data with cover letter for each copy of submittal. Show Application number and date, and line item by number and description.

PART 2 PRODUCTS

A. Not Used

PART 3 EXECUTION

A. Not Used

END OF SECTION

SECTION 01028

CHANGE ORDER PROCEDURES

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Submittals.
- B. Documentation of change in Contract Price and Contract Time.
- C. Change procedures.
- D. Construction Change Authorization
- E. Stipulated Price change order.
- F. Unit price change order.
- G. Time and material change order.
- H. Execution of change orders.
- I. Correlation of Contractor submittals.

1.2 RELATED SECTIONS

- A. Section 00500 - Agreement Forms: Monetary values of established Unit Prices.
- B. Section 00700 - General Conditions: Governing requirements for changes in the Work, in Contract Price, and Contract Time.
- C. Section 01700 - Contract Closeout: Project Record Documents.

1.3 SUBMITTALS

- A. Submit name of the individual authorized to receive change documents, and be responsible for informing others in Contractor's employ or Subcontractors of changes to the Work.
- B. Change Order Forms: Engineer approved Change Order.

1.4 DOCUMENTATION OF CHANGE IN CONTRACT PRICE AND CONTRACT TIME

- A. Maintain detailed records of work done on a time and material basis. Provide full information required for evaluation of proposed changes, and to substantiate costs of changes in the Work.
- B. Document each quotation for a change in cost or time with sufficient and complete data to allow evaluation of the quotation.
- C. On request, provide additional data to support computations:
 - 1. Quantities of products, labor, and equipment.
 - 2. Taxes, insurance and bonds.

3. Overhead and profit.
 4. Justification for any change in Contract Time.
 5. Credit for deletions from Contract, similarly documented.
- D. Support each claim for additional costs, and for work done on a time and material basis, with additional information:
1. Origin and date of claim.
 2. Dates and times work was performed, and by whom.
 3. Time records and wage rates paid.
 4. Invoices and receipts for products, equipment, and subcontracts, similarly documented.
- E. Support each claim for additional contract time with a detailed time logic analysis from the Project Schedule.

1.5 CHANGE PROCEDURES

- A. The Engineer will advise of minor changes in the Work not involving an adjustment to Contract Price or Contract Time as authorized by issuing supplemental instructions.
- B. The Engineer may issue a Proposal Request which includes a detailed description of a proposed change with supplementary or revised Drawings and specifications, a change in Contract Time for executing the change with a stipulation of any overtime work required and the period of time during which the requested price will be considered valid. Contractor will prepare and submit an estimate within fifteen days.
- C. The Contractor may propose a change by submitting a request for change to the Engineer, describing the proposed change and its full effect on the Work, with a statement describing the reason for the change, and the effect on the Contract Price and Contract Time with full documentation and a statement describing the effect on Work by separate or other contractors.

1.6 CONSTRUCTION CHANGE AUTHORIZATION

- A. Engineer may issue a document, authorized by the Owner, instructing the Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.
- B. The document will describe changes in the Work, and will designate method of determining any change in Contract Sum/Price or Contract Time.
- C. Promptly execute the change in Work.

1.7 STIPULATED PRICE CHANGE ORDER

- A. Based on Proposal Request and Contractor's fixed price quotation or Contractor's request for a Change Order as approved by Engineer.

1.8 UNIT PRICE CHANGE ORDER

- A. For pre-determined unit prices and quantities, the Change Order will be executed on a fixed unit price basis.
- B. For unit costs or quantities of units of work which are not pre-determined, execute Work under a Construction Change Authorization.

- C. Changes in Contract Price or Contract Time will be computed as specified for Time and Material Change Order.

1.9 TIME AND MATERIAL CHANGE ORDER

- A. Submit itemized account and supporting data after completion of change, within time limits indicated in the Conditions of the Contract.
- B. Engineer will determine the change allowable in Contract Price and Contract Time as provided in the Contract Documents.
- C. Maintain detailed records of work done on Time and Material basis on Engineer approved form.
- D. Provide full information required for evaluation of proposed changes, and to substantiate costs for changes in the Work.

1.10 EXECUTION OF CHANGE ORDERS

- A. Execution of Change Orders: Engineer will issue Change Orders for signatures of parties as provided in the Conditions of the Contract.

1.11 CORRELATION OF CONTRACTOR SUBMITTALS

- A. Promptly revise Schedule of Values and Application for Payment forms to record each authorized Change Order as a separate line item and adjust the Contract Price.
- B. Promptly revise progress schedules to reflect any change in Contract Time, revise sub-schedules to adjust time for other items of work affected by the change, and resubmit.
- C. Promptly enter changes in Project Record Documents.

PART 2 PRODUCTS

- A. Not Used

PART 3 EXECUTION

- A. Not Used

END OF SECTION

SECTION 01039

COORDINATION AND MEETINGS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Coordination.
- B. Preconstruction conference.
- C. Progress meetings.

1.2 RELATED SECTIONS

- A. Section 01040 - Project Coordination.
- B. Section 01050 - Field Engineering.

1.3 COORDINATION

- A. Coordinate scheduling, submittals, and Work of the various Sections of specifications to assure efficient and orderly sequence of installation of interdependent construction elements.
- B. Verify that utility requirement characteristics of Contractor's operating equipment are compatible with available site utilities provide by Contractor.
- C. Coordinate completion and clean up of Work of separate Sections in preparation for Substantial Completion.
- D. After Owner acceptance of Work, coordinate access to site for correction of defective Work and Work not in accordance with Contract Documents, to minimize disruption of Owner's activities.

1.4 PRECONSTRUCTION CONFERENCE

- A. Engineer will schedule a conference after Notice of Award.
- B. Attendance Required: Owners, Engineer, U.S. EPA representative, and Contractor.
- C. Agenda:
 - 1. Execution of Owner-Contractor Agreement.
 - 2. Submission of executed bonds and insurance certificates.
 - 3. Distribution of Contract Documents.
 - 4. Submission of list of Subcontractors, list of products, Schedule of Values, and progress schedule.
 - 5. Designation of personnel representing the parties in Contract, and the Engineer.
 - 6. Procedures and processing of field decisions, submittals, substitutions, applications for payments, proposal request, Change Orders and Contract closeout procedures.
 - 7. Scheduling.
 - 8. Scheduling activities of Verification Sampling and Laboratory Services.

1.5 PROGRESS MEETINGS

- A. The Engineer shall schedule and administer meetings throughout progress of the Work at maximum bi-weekly (14 days) intervals.
- B. The Engineer shall make arrangements for meetings, prepare agenda with copies for participants, preside at meetings, record minutes, and distribute copies within two days to Contractor, Owner, participants, and those affected by decisions made.
- C. Attendance Required: Job superintendent, major Subcontractors and suppliers, Engineer, as appropriate to agenda topics for each meeting.
- D. Agenda:
 - 1. Review minutes of previous meetings.
 - 2. Review of Work progress.
 - 3. Field observations, problems, and decisions.
 - 4. Identification of problems which impede planned progress.
 - 5. Review of submittals schedule and status of submittals.
 - 6. Maintenance of progress schedule.
 - 7. Corrective measures to regain projected schedules.
 - 8. Planned progress during succeeding work period.
 - 9. Coordination of projected progress.
 - 10. Maintenance of quality and work standards.
 - 11. Effect of proposed changes on progress schedule and coordination.
 - 12. Other business relating to Work.

PART 2 PRODUCTS

- A. Not Used

PART 3 EXECUTION

- A. Not Used

END OF SECTION

SECTION 01050

FIELD ENGINEERING

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Quality control.
- B. Submittals.
- C. Project Record Documents.

1.2 RELATED SECTIONS

- A. Section 00700 - General Conditions: Basic site engineering requirements.
- B. Section 01025 - Measurement and Payment: Measurement for Work requiring unit price payment.
- C. Section 01700 - Contract Closeout: Project Record Documents.

1.3 QUALITY CONTROL

- A. The Engineer will employ a Land Surveyor registered in the State of Michigan.

1.4 PROJECT RECORD DOCUMENTS

- A. The Land Surveyor will maintain a complete and accurate log of control and survey work as it progresses.

1.5 EXAMINATION

- A. The Land Surveyor shall verify locations of survey control points prior to starting work.
- B. The Land Surveyor shall promptly notify Engineer of any discrepancies discovered.

1.6 SURVEY REFERENCE POINTS

- A. The Land Surveyor shall locate and mark survey control and reference points.
- B. The Land Surveyor shall tie-in project control points to the State Coordinate Grid System.
- C. Control datum for survey is that indicated on Drawings.
- D. The Contractor shall flag and protect survey control points prior to starting site work; preserve permanent reference points during construction.
- E. Promptly report to Engineer the loss or destruction of any reference point or relocation required because of changes in grades or other reasons.
- F. The Contractor shall be responsible for costs to replace dislocated or damaged survey control points during construction based on original survey control.

1.7 SURVEY REQUIREMENTS

- A. The Engineer shall provide field surveying services utilizing recognized engineering survey practices.
- B. Establish a minimum of two permanent bench marks and any additional bench marks on site, referenced to established control points for the performance of the Work. Record locations, with horizontal and vertical data, on Project Record Documents.
- C. Establish elevations, lines and levels. Locate and layout by instrumentation and similar appropriate means, site improvements including pavements; stakes for grading, fill and topsoil placement; utility locations, slopes, and invert elevations prior to construction. Establish and record the exact location of all work from control points, baseline transit points, or other points of similar nature as shown on the plans. Preserve all computations necessary to establish the exact position of the work from the control points.
- D. Establish a project grid system which will be used as the basis for all field survey work. The grid system must be submitted to the Owner's on-site representative for approval before commencement of construction activities.
- E. Note all alterations and revisions to ties and furnish to the Engineer.
- F. Furnish to the Engineer for interpretation any apparent discrepancy or absence in or of data shown or required for accurately accomplishing the stakeout survey.
- G. Re-establish and re-tie all control points as permanently as possible, and to the satisfaction of the Engineer.

1.8 SURVEYS FOR MEASUREMENT AND PAYMENT

- A. The Engineer shall perform surveys to determine quantities of unit cost work, including control surveys to establish measurement reference lines.
- B. Engineer's Surveyor shall sign his field notes and provide duplicate field notes to the Contractor.
- C. The Engineer shall calculate and certify quantities for payment purposes.

PART 2 PRODUCTS

- A. Not Used

PART 3 EXECUTION

- A. Not Used

END OF SECTION

SECTION 01060

REGULATORY REQUIREMENTS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Performance of all work in accordance with all applicable regulations. Note, in the event that an applicable regulation has been updated, the most current version of that regulation in effect at the time of the execution of the Agreement shall be considered by the Contractor to be applicable.

1.2 RELATED SECTIONS

- A. Section 01110: Environmental Protection
- B. Section 01560: Temporary Control
- C. Section 02050: Demolition
- D. Section 02110: Site Clearing
- E. Section 02222: Earthwork
- F. Section 02260: Stabilization/Solidification Process

1.3 SUBMITTALS

- A. Submit to Engineer for review and approval a report of any arrangements to be made prior to off site disposal of any substances or materials.
- B. Submit to Engineer a plan to satisfy all compliance needs of environmental protection plans to be implemented under Section 01110.

1.4 ON-SITE ACTIVITIES

- A. No permits are required for on-site activities (NCP). Additionally, the contractor must notify all local utilities and the City of Bronson at least two (2) working days before beginning any construction.
- B. The on-site work must comply with the current versions of the following environmental laws.
 - 1. Subchapter C, Part 264, of the Resource Conservation and Recovery Act, as amended and in effect in 1988.
 - 2. Safe Drinking Water Act. Site remediation activities must not result in groundwater contamination.
 - 3. OSHA: Occupational Safety & Health Administration, 29 CFR 1910, 1904, 1926 and 1990.

4. Local pretreatment regulations for liquid disposal to on-site sanitary sewer or N.P.D.E.S. permit for discharge of storm water.

1.5 OFF-SITE ACTIVITIES

- A. Hazardous Materials
 1. No hazardous materials, wastes, etc. may be disposed of off-site without the written approval of the Engineer..
- B. Non-Hazardous Materials
 1. State of Michigan or local solid waste regulations.
 2. A wastewater discharge permit must be obtained and complied with, for discharges of contaminated storm, decontamination, or process water discharged to POTW.
- C. Transportation
 1. Transportation of any raw or waste materials must comply with all applicable regulations including, but not necessarily limited to the following:
 - a. Department of Transportation: 49 CFR 171-179
 - b. Maintain easement requirements with the applicable jurisdictions for use of roads and bridges during remediation and/or permits for construction traffic.

PART 2 PRODUCTS

- A. Not Used

PART 3 EXECUTION

- A. Not Used

END OF SECTION

SECTION 01090

REFERENCE STANDARDS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Quality assurance.
- B. Schedule of references.

1.2 QUALITY ASSURANCE

- A. For products or workmanship specified by association, trade, or Federal Standards; comply with requirements of the standard, except when more rigid requirements are specified or are required by applicable codes.
- B. Conform to reference standard by date of issue current on date of Contract Documents
- C. Obtain copies of standards when required by Contract Documents.
- D. Maintain copy at jobsite during planning, and progress of the specific work, until Completion.
- E. Should specified reference standards conflict with Contract Documents, request clarification from Engineer before proceeding.
- F. The contractual relationship of the parties to the Contract shall not be altered from the Contract Documents by mention or inference otherwise in any reference document.

1.3 SCHEDULE OF REFERENCES

ACI	American Concrete Institute Box 19150 Reford Station Detroit, MI 48219
ANSI	American National Standards Institute 1430 Broadway New York, NY 10018
ASME	American Society of Mechanical Engineers 345 East 47th Street New York, NY 10017
ASTM	American Society for Testing and Materials

1916 Race Street
Philadelphia, PA 19103

EJCDC
Engineers' Joint Contract Documents
Committee
American Consulting Engineers Council
1015 15th Street, N.W.
Washington, DC 20005

NEMA
National Electrical Manufacturers' Association
2101 'L' Street, N.W.
Washington, DC 20037

NFPA
National Fire Protection
Association
Battery March Park
Quincy, MA 02269

PCA
Portland Cement Association
5420 Old Orchard Road
Skokie, IL 60077

PART 2 PRODUCTS

A. Not Used

PART 3 EXECUTION

A. Not Used

END OF SECTION

SECTION 01110

ENVIRONMENTAL PROTECTION

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Performance of all remedial work while minimizing all potential environmental aspects on, but not limited to the air, water, land and, to the extent possible noise and distraction to local residents and business operations.
- B. Minimization of all environmental impacts in accordance with all applicable Federal, state and local laws and regulations.

1.02 RELATED SECTIONS

- A. Section 01060: - Regulatory Requirements
- B. Section 01120: - Site Maintenance
- C. Section 01160: - Health And Safety Plan
- D. Section 01560: - Temporary Controls
- E. Section 02100: - Site Preparation
- F. Section 02222: - Excavating

1.03 SUBMITTALS

- A. Submit to the Engineer for approval, a site plan for implementation of environmental protection measures.
- B. Approval of Contractor's plan for environmental protection shall not relieve the Contractor of any responsibility for adequate and continuing control of potential environmental impacts.
- C. Submit to the Engineer for approval a site plan indicating all proposed locations of Contractor temporary facilities and activities (e.g., erosion and runoff, temporary roads, trailers, parking, storing/staging areas, etc.).

- D. The Contractor shall submit in writing his proposals for implementing the requirements for environmental protection. Specifically, the Contractor must address the following: protection of land resources, protection of water resources, debris disposal, dust control and decontamination pad.

1.04 PROTECTION OF LAND RESOURCES

- A. Land resources within the project boundaries and outside the limits of permanent work performed under this contract to be preserved in present condition to the maximum extent possible. The contractor must confine construction activities to areas defined by the drawings or specifications.
- B. Minimization of Impact to Landscaping and Existing Facilities:
Except in all areas indicated on the drawings where soil/sediment is to be excavated or placed, the Contractor must minimize impact to the existing vegetation and indicate in an environmental protection plan any impacts to existing landscaping.
- C. Restoration of Landscape
Any vegetation or other landscape feature scarred or damaged by the Contractor's equipment or operations shall be restored to a satisfactory condition as specified in Section 02210.
- D. Location of Office, Sites, Storage and Testing Facilities
Contractor's offices, storage, parking areas, and other construction related facilities located on the site which is required to perform the work, must be located upon cleared portion of the job site or areas to be cleared or excavated, and will require written approval of the Engineer. Minimization of impact on the landscape must be a consideration in the selection of all sites and in the location of the Contractor's facilities.

1.05 PROTECTION OF WATER RESOURCES

- A. General

The Contractor must not pollute surface or ground waters, with waste materials, or other harmful materials. The Contractor must comply with all applicable Federal, state and local laws concerning pollution surface waters.

B. Erosion Control

Prior to any remedial construction, the Contractor must implement the approved erosion and runoff control plan.

C. Water that comes into contact with the contaminated material must be tested and disposed of appropriately. It is the Contractor's responsibility to characterize the water at his expense.

It is also the Contractor's responsibility to arrange and pay for the treatment and disposal methods and permits required to discharge process, waste and storm water to the local POTW or to an appropriate off-site facility.

D. Spillage

Special measures shall be taken to ensure that no accidental contamination of the public waterways and groundwater will occur from the operation or malfunction of the testing, sampling and removal of wastes. A spill control plan shall be submitted to the Engineer at least 30 days prior to the start of any work at the site. See Section 01160, paragraph 10 and 12.

E. Disposal

Disposal of any materials, wastes, effluents, trash, garbage, oil, grease, or chemicals in adjacent areas shall not be permitted. If any waste material is dumped in unauthorized areas, the Contractor shall immediately remove the material and restore the area to the original undisturbed condition. If necessary, contaminated soil shall be characterized excavated, disposed of as directed by the Engineer, and replaced with suitable fill material, compacted and finished with topsoil and planted as required to re-establish vegetation, at the expense of the Contractor.

1.06 DISPOSAL OF DEBRIS

- A. All disposal sites for debris shall be approved by the Engineer and any other regulatory authorities required. Debris is defined as any non-waste soil material that must be disposed as a result of excavation, cleaning, and other non-processing activities.
- B. It is the Contractor's responsibility to characterize debris at his expense. Non-hazardous material shall be legally and properly disposed of off-site. Hazardous material shall be appropriately rendered non-hazardous prior to disposal.
- C. Under no circumstances shall the Contractor dispose of any debris, soil or any other material at the Site.

1.07 DUST CONTROL

- A. The Contractor must implement an approved dust and erosion control plan. See Spec. Section 01560 for details.

1.08 DECONTAMINATION PAD

- A. The pad(s) will be constructed for the purpose of removing soil and contaminated material from vehicles and equipment leaving the work area.
- B. A curb shall be poured integral with the decontamination slab to obtain complete water tightness.
- C. Cracks which develop in the slab during the project shall be filled with sealant as approved by the Contracting Officer.
- D. Concrete sealer shall be applied over the finished surface.
- E. A vapor barrier consisting of a 30 mil visqueen polyethylene film or equivalent shall be installed. Lap joints at least 30 in. and seal with water-tight adhesive. Any punctures must be repaired prior to the placement of the concrete.
- F. Control joints shall be cut to a minimum depth of 2 in. and filled with sealant.
- G. The decontamination pad will be removed and disposed of at a secured landfill approved by the Engineer at the end of the project.

PART 2 PRODUCTS

- A. Liner shall be 40 mil PVC single sheets with a minimum width of 60 inches conforming to the following properties:

<u>PROPERTY</u>	<u>TEST METHOD</u>	<u>REQUIRED VALUE</u>
Gauge		40
Thickness	ASTM D1593	38
Specific Gravity Range	ASTM D792	1.2 – 1.3
Minimum Tensile Properties (each direction)		
Breaking Factor(lbs per width)	Method A or B	90
Elongation at Break (%)	Method A or B	400
Modulus @ 100% Elongation	Method A or B	40
Tear Resistance lb, minimum	ASTM D1004	12
Low Temperature °F	ASTM D1790	-25
Dimensional Stability	ASTM D1204	
(each direction % change max)	212 °F, 15 min	3.5
Water Extraction (% loss maximum)	ASTM D3083	3.5
Volatile Loss (% loss maximum)	ASTM D1203 Method A	0.5
Resistance to Soil Burial (% change maximum in original value)		
Breaking Factor		5
Elongation at Break		20
Modulus @100 % Elongation		20
Hydrostatic Resistance, psi	ASTM D751 Method A	100

PART 3 EXECUTION

- A. The liner shall completely envelope the decontamination pad curbing and overlap a minimum of 1 foot in all planes.

- B. Liner materials may be reused as long as they continue to provide a complete barrier that is leakproof.

END OF SECTION

SECTION 01120

SITE MAINTENANCE

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Maintenance Requirements
- B. Materials
- C. Construction
- D. Project Closeout

PART 2 PRODUCTS

- A. Not Used.

PART 3 EXECUTION

3.1 MAINTENANCE REQUIREMENTS

- A. Conduct all site maintenance and disposal activities in accordance with all applicable codes, ordinances, and regulations.

3.2 MATERIALS

- A. Use only cleaning materials and methods which will not create health or environmental hazards.

3.3 CONSTRUCTION

- A. Execute daily cleaning of the site to collect all accumulated contaminated material, including discarded health and safety equipment.
- B. Execute periodic cleaning to keep the project site free from accumulation of contaminated material resulting from project execution, except in designated areas as shown on plans.

- C. Provide separate on-site containers for the disposal of all contaminated/hazardous and non-contaminated/non-hazardous debris. Clearly label containers to identify contents and to prohibit the improper disposal of any material.
- D. Remove all non-contaminated/non-hazardous debris from the project site; dispose of all such material in an approved off-site disposal facility.

3.4 PROJECT CLOSEOUT

- A. Conduct an inspection of all Work areas and certify to the Owner or the Owner's Representative that the entire project area is free of all extraneous materials generated from Work execution.

SECTION 01160

HEALTH AND SAFETY PLAN

PART I - GENERAL

1.01 Section Includes

- A. Health and Safety Contingency Plan
- B. Personnel Requirements
- C. Task/Operation Safety and Health Risk Analysis
- D. Personnel Training Requirements
- E. Personal Protective Equipment
- F. Medical Surveillance Requirements
- G. Air Monitoring and Personnel Air Sampling
- H. Site Control Measures
- I. Decontamination Plan
- J. Emergency Response/Contingency Plan
- K. Confined Space Entry Procedures
- L. Spill Containment Program

The objective of these procedures is to minimize the risk of exposure to hazardous substances by identifying, evaluating and controlling potential safety and health hazards. The Contractor shall submit prior to receiving the Notice To Proceed, a Health and Safety Plan to the Owner, subject to the approval of the U.S. EPA, that ensures the protection of the public health and safety during the performance of On-Site work conducted under the Consent Order referenced in the Special Conditions of the Contract Documents. This Plan shall be in full compliance with all applicable provisions of the Occupational Safety and Health Administration (OSHA) regulations found in 29 CFR Part 1910.

1.02 References and Standards (most recent edition or revisions, as applicable; governs):

- A. Federal OSHA Standards
 - 1. Air Contaminants - Permissible Exposure Limits; OSHA 3112; 1989.
 - 2. General Industry Standards and Interpretations; Volumes 1 - 3; OSHA 2077; U. S. Department of Labor, Occupational Safety and Health Administration; - Specifically Sections. - 29 CFR 1910.100 (air contaminants) 1910.120 (Hazardous Waste Operations and Engineering Response) 1910.1200 (Hazard Communication) 1904 (Record-keeping and Reporting Occupational Inquiries and Illnesses) 1990

(Identification, Classification and Regulation of Potential Occupational Carcinogens)
1926 (Safety and Health Regulations for Construction)

3. Hazardous Waste Inspections Reference Manual; U.S. Department of Labor; Occupational Safety and Health Administration; 1986.
4. OSHA Field Operations Manual; 2nd Edition; U.S. Department of Labor; Occupational Safety and Health Administration; 1987.

B. Other References and Standards.

1. A Guide to the Safe Handling of Hazardous Materials Accidents; STP 825; American Society for Testing and Materials; 1983.
2. Air Sampling Instruments; 6th Edition; American Conference of Governmental Industrial Hygienists (ACGIH); 1983.
3. Air Surveillance for Hazardous Materials; USEPA Office of Emergency and Remedial Response, Hazardous Response Support Division; 1985.
4. Casarett and Doull's Toxicology -- The Basic Science of Poisons; 3rd Edition, Klaassen, CD, Amdur, MO, Doull, J; MacMillan; 1986.
5. Dangerous Properties of Industrial Materials; Sax, NI; Van Nostrand Reinhold Co.; New York; 1984.
6. Detector Tube Handbook, 6th Edition; Dragerwerk AG Lubeck (National Draeger); 1985.
7. Fire Service Emergency Management Handbook; Federal Emergency Management Agency; 1985.
8. Fire Protection Guide on Hazardous Materials; 8th Edition; National Fire Protection Association; 1984.
9. Fundamentals of Industrial Hygiene; 3rd Edition; Plog, BA; National Safety Council; 1988.
10. Guide to Industrial Respiratory Protection; NIOSH Publication 87-116; U.S. Department of Health and Human Services, Public Health Service, Centers for Disease Control, NIOSH; 1987.
11. Guide to Portable Instruments for Assessing Airborne Pollutants Arising from Hazardous Wastes; (draft international document) International Organization of Legal Metrology; 1988.
12. Guidelines for the Selection of Personal Protective Equipment; 3rd Edition; Schwoppe, AD; American Conference of Governmental Industrial Hygienists; Cincinnati; 1987.
13. Handbook of Reactive Chemical Hazards; 3rd Edition; Bretherick, L; Butterworths, London; 1985.
14. Hazardous Materials: Practical Tactical Considerations for Emergency Response Personnel (seminar proceedings); Institute for Life Safety Technology and

Emergency Management Education; International Society of Fire Service Instructors.

15. Hazardous Waste Handbook for Health and Safety; Martin, W.F.; Lippit, J.M.; Prothero, T.C.; Butterworth Publishers; 1987.
16. Hazardous Materials Emergencies Response and Control; Cashmon, JR; Technomic Publishing Company; 1983.
17. Hazardous Materials; Isman, WE, Carlson, GP; MacMillan; 1980.
18. Hazardous Materials for First Responders; First Edition; International Fire Service Training Association; Oklahoma State University; 1988.
19. Health and Safety Audit Guidelines - SARA Title I Section 126; USEPA Office of Emergency and Remedial Response, EPA 540/G-89/010; December, 1989.
20. ILO Encyclopedia of Occupational Health and Safety; Volumes 1 and 2; International Labor Organization; 1983.
21. Industrial Hygiene -- A Guide to Technical Information Sources; Tucker, M.E.; American Industrial Hygiene Association; 1984.
22. NIOSH Manual of Analytical Methods; 3rd Edition; DHHS (NIOSH) Publication No. 84-100, Eller, P.M., Ph.D., CIH Editor; February, 1984.
23. NIOSH/OSHA Pocket Guide to Chemical Hazards; U.S. Department of Health and Human Services, Public Health Service; Centers for Disease Control, NIOSH; 1985.
24. Occupational Health Guidelines for Chemical Hazards; NIOSH/OSHA Department of Health and Human Services (NIOSH) Publication No. 81-123; January, 1981.
25. Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities; NIOSH/OSHA/USCG/EPA; U.S. Department of Health and Human Services, Public Health Service, Centers for Disease Control, NIOSH; 1985.
26. Patty's Industrial Hygiene and Toxicology; Volumes 1 through 3B. Clayton, F.E. et al; John Wiley and Sons, Inc.; 1978.
27. Performance of Protective Clothings; Barker, R. L., Colletta, G.C.; American Society for Testing and Materials; 1986.
28. Personal Protective Equipment for Hazardous Materials Incidents: A Selection Guide; NIOSH Publication 84-114; U.S. Department of Health and Human Services, Public Health Service, Centers for Disease Control, NIOSH; 1984.
29. Practical Guide to Respirator Use in Industry; Rajhans, GS, Blackwell, DSL; Butterworth; 1985.
30. Protecting Personnel at Hazardous Waste Sites; Levine, SP, Martin, WF; Butterworths.
31. Safety and Health in Building and Civil Engineering Work; International Labor Office, Geneva; 3rd Printing, 1985.

32. Superfund Public Health Evaluation - Manual; USEPA Office of Emergency and Remedial Response EPA 540/1-85/060; October, 1986.
33. The Health Physics and Radiological Health Handbook; Nucleon Lectern Associates, Inc. Schleien, B. et. al, Editors; 1984.
34. The Industrial Environment -- Its Evaluation and Control; U.S. Public Health Service, Centers for Disease Control, NIOSH; 1973.
35. The Merck Index, An Encyclopedia of Chemicals and Drugs; 10th Ed. Merck Company; 1983.
36. Threshold Limit Values and Biological Exposure Indices 1988-1989; American Conference of Governmental Industrial Hygienists (ACGIH); 1988.

1.03 Plan Description

A. Provide a Health and Safety Plan (HASP), which establishes policies and procedures to protect workers and the public from the potential hazards posed by the site. The HASP must be developed before site activities shall proceed. Upon approval of the HASP by the Engineer, it shall become a part of these specifications by reference. At a minimum the plan shall:

1. Name key personnel and alternates responsible for site safety.
2. Describe risks associated with each operation conducted.
3. Confirm that personnel are adequately trained to perform their job responsibilities and to handle the specific hazardous situations they may encounter.
4. Describe the protective clothing and equipment to be worn by personnel during various site operations.
5. Describe any site specific medical surveillance requirements.
6. Describe the program for periodic air monitoring, personnel monitoring, and environmental sampling (if needed).
7. Describe the program to be taken to mitigate existing hazards to make the work environment less hazardous.
8. Define site control measures and include a site map.
9. Establish decontamination procedures for personnel and equipment.
10. Set forth the site's Standard Operating Procedures for Health and Safety.

B. Definitions

As used in HASP, the following terms are defined:

"Active Operations" - Activities resulting in disturbance of soil, buildings, or equipment at a work area.

"Authorized Personnel" - Any person, such as task-specific personnel, project personnel, oversight personnel, contractors, and consultants whose presence is authorized at the project site by the Owner.

"Contractor/Consultant" - Any person or firm, retained or hired by Contractor to carry out and/or supervise any portion of the activities conducted at the project site.

"Exclusion Zone" - The area in which all personnel entering must be directly involved in the ongoing work, have designated personal protective equipment (PPE), and meet training and medical monitoring requirements. The exclusion zone will be defined by an approximate 25 ft. radius around the work area or an appropriate physical barrier, which will be suitably marked.

"MSDS" - Material Safety Data Sheets, which provide information on the physical, chemical, and hazardous properties of chemical compounds.

"Oversight Personnel" - Any person, designated by the State, Federal Government, or Owner who is assigned to carry out oversight work.

"PPM" - Parts per million; expressed as PPM(V) for gases and vapors.

"Project Personnel" - Any person or contractor, assigned by the Owner, its consultants, its contractors or subcontractors, to carry out work at the project site (e.g., Project Director, Project Manager, etc.).

"Project Health and Safety Officer" - The designated person responsible for overall implementation of the Health and Safety Plan.

"Project Site" - The area defined by a Site Specific Work Plan (SSWP), as well as contiguous areas to which access is required for the execution of the field tasks which may be set forth in a Work Plan.

"Site Safety Officer" - The person(s) designated by the Contractor who is responsible for supervising the Health and Safety Plan.

"Support Zone" - The area outside the exclusion zone that is considered clean for the purpose of the Health and Safety Plan. It is used for transfer of equipment and materials (i.e., support) into the secure area.

"Task-Specific Site Personnel" - Any person or contractor assigned by the Consultant to carry out work at the project site.

"Secure Zone" - The area within a radius of approximately 50 ft. established from the center of the work area or an appropriate physical barrier (e.g. remediation site) and indicated by a visible surface device.

1.04 Submittals

A. Prior to Work Start:

1. Written HASCP containing all requirements under 29 CFR 1910.120. The plan is written to avoid misinterpretation, ambiguity, and mistakes that verbal orders cause.
2. HASP approvals by appropriate and qualified personnel.

3. Documentation of medical monitoring.
4. Documentation of personnel training.
5. Documentation of personnel respirator qualification and fit testing.

B. During Construction Activities:

1. All required forms and OSHA records will be kept on site as applicable.

1.05 Provide a HASP consistent with the recommended format as outlined in Reference No. B25, Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities. Minimum HASP requirements are described according to the following:

- i. Table of Contents
- ii. HASP
- iii. Tables and Figures
- iv. Addenda

1.06 The contents of the HASP shall include but not be limited to the following sections:

1.0 INTRODUCTION

1.1 Scope of Applicability of the HASP

- A. Identify, evaluate, and control potential safety and health hazards.
- B. Provide emergency response provisions for accidents during work operations.

1.2 Definition

- A. To avoid misunderstanding on site, list the following items:

1. List of terms referenced in HASP.
2. List of term definitions.

1.3 Visitor Requirements on Site

- A. Visitors may periodically visit the site. The visitors must:

1. Be able to identify the secure zone and understand procedures.
2. Know and follow sign in/sign out procedures.

2.0 KEY PERSONNEL/IDENTIFICATION OF HEALTH AND SAFETY PERSONNEL

Identify key personnel (and alternates) and organizational responsibilities for site safety. Also identify key personnel assigned to various operations. List telephone numbers, addresses and organizations of these people.

2.1 Key Personnel

- A. List and define key project personnel on site and off site. Include names, title and office phone number.

2.2 Site Specific Health and Safety Personnel

- A. List site health and safety personnel and alternates. Include name, title, and office phone number.

2.3 Organization Responsibilities

- A. Specify minimum responsibilities of key project, and health and safety personnel.

3.0 TASK/OPERATION SAFETY AND HEALTH RISK ANALYSIS

3.1 Historical Overview of Site

- A. Include a site history.
- B. Include a site map to provide an understanding of the geographical area.

3.2 Task/Risk Analysis

- A. Identify and evaluate any potential physical, biological, radiological or chemical hazards. Express potential impact on workers or the public.
- B. Instructions
1. Identify electrical hazards.
 - a. Overhead electrical lines
 - b. Buried electrical lines
 2. Identify mechanical hazards.
 - a. Moving equipment and vehicles
 - b. Rotating machine parts
 3. Identify fire/explosion hazards.
 - a. Gasoline powered equipment
 - b. Smoking
 - c. Flammable fumes and vapors
 4. Identify heat and cold stress hazards.
 - a. Extremely hot, humid weather
 - b. Extremely cold/windy weather
 5. Identify acoustical hazards.
 - a. Drilling rigs
 - b. Noisy equipment
 6. Identify physical hazards.
 - a. Slippery or uneven walking surfaces
 - b. Tripping hazards
 7. Identify biological hazards.
 - a. Insects; bee stings and potential allergic reaction
 - b. Deer, tick bites and development of Lyme Disease
 - c. Snake bites and poison injection

- d. Poison ivy, poison oak, and other types of contact dermatitis
- 8. Identify drilling hazards.
 - a. Drilling hazards from drilling rig itself
 - b. Hydraulic lines that may break
 - c. Gasoline fueled equipment that may cause an explosion hazard
- 9. Identify trenching/shoring hazards.
 - a. Secure, solid banks
 - b. Correct slope of banks
 - c. Engulfment hazards caused by soil types, improper storing, etc.
 - d. Confined space entry and potential of low oxygen content or toxic fumes
- 10. Identify water hazards.
 - a. Defined Buddy system
 - b. Ensure life line system
 - c. Provide personal floating devices
 - d. Proper personal protective equipment to prevent exposure to possible toxics or elevated pH in water
- 11. Identify unanticipated hazards.

4.0 PERSONNEL TRAINING REQUIREMENTS

4.1 Pre-Assignment and Annual Refresher Training

- A. Provide that all site personnel have received the following training:
 - 1. Document 40 hour OSHA training (1910.120).
 - 2. Document 3 days of supervised work at CERCLA or RCRA sites (1910.120).
 - 3. Document 8 hour OSHA annual refresher (1910.120).
 - 4. Training in the calibration and use of field monitoring and sampling equipment.

4.2 Provide Supervisors Training

- A. Provide that all required site personnel have received the following training:
 - 1. Document training stated in 4.1.
 - 2. Document additional 8 hours OSHA supervisors training.

4.3 Trainings and Briefing Topics

- A. Pre-project briefing meeting covering the following HASCP topics:
 - 1. Site Characterization
 - 2. Hazards
 - 3. Medical Surveillance Requirements
 - 4. Symptoms of Overexposure to Hazards
 - 5. Site Control
 - 6. Training Requirements
- B. Have all site workers sign an acknowledgement form attesting to attendance at the pre-project meeting, understanding of safety rules and documentation and understanding of respirator fit test.

- C. Hold a daily safety meeting to be held by the designated site safety officer to discuss specific current safety issues and as a daily safety reminder.
 - 1. Suggested topics to be covered:
 - a. Personal Protective Equipment
 - b. Hazards
 - c. Any Injuries or Close Calls
 - d. Weather Related Issues

5.0 PERSONAL PROTECTIVE EQUIPMENT TO BE USED

Define levels of protection required for work activities in terms of work location and/or work function. Define specific types of respirators and protective clothing for each level. After review of hazards and the greatest expected exposure, select Levels A-D, Personal Protective Equipment. Due to the identified contaminants, Levels A and B are not likely to be required. Describe levels of protection worn by personnel and delineate specific job functions.

- 5.1 Level A - worn when the highest level of respiratory, skin, and eye protection is needed
- 5.2 Level B - worn when the highest level of respiratory protection is needed, but a lesser level of skin protection
- 5.3 Level C - worn when the criteria for using air-purifying respirators are met based on toxins and/or air monitoring results
- 5.4 Level D - worn only as work uniform and not on any site with respiratory or skin hazards
- 5.5 The Level Of Protection Is Selected Based On:
 - A. Type and measured concentration of the chemical substances in the ambient atmosphere and their toxicities.
 - B. Potential for exposure to substances in air, splashes of liquids, or other direct contact with material due to work being done.
- 5.6 Reassessment of Protection Program
 - A. Levels of protection can be upgraded or downgraded based upon changes in site conditions or later findings.
- 5.7 Work Mission Duration
 - A. The anticipated duration of the work mission is established.
 - B. Conditions that affect work mission duration to be addressed in this section are:
 - 1. Cold and heat
 - 2. Capacity to work in full face respirators
 - 3. Air supply consumption of SCBA's
 - 4.
- 5.8 Chemical Resistance and Integrity of Protective Material
 - A. Specific personal protective equipment must be specified for the tasks performed in the HASP
 - B. The Quick Selection Guide to Chemical Protective Clothing provides a quick reference.
- 5.9 Standard Operating Procedures for Respiratory Protection Devices

- A. Checklists for pre-use inspection, re-inspection and periodic inspection.
- 5.10 Standard Operating Procedures for Personal Protective Clothing
 - A. Checklists for pre-use inspection and re-inspections.
- 5.11 Specific Levels of Protection for Site
 - A. Based on anticipated hazards, the specific levels of protection are listed.
 - 1. Level A
 - 2. Level B
 - 3. Level C
 - 4. Level D
 - B. List all types of personal protective equipment anticipated to be used on site for each level.
- 6.0 **MEDICAL SURVEILLANCE REQUIREMENTS**
 - A. Develop a medical surveillance program by a Board Certified or Qualified to be Board Certified Occupational Physician.
 - 6.1 Baseline or Pre-assignment Monitoring
 - A. Document medical monitoring for all personnel working in the Secure Zone.
 - B. Examinations to include:
 - 1. Complete Medical and Work Histories
 - 2. Physical Examination
 - 3. Pulmonary Function
 - 4. Chest X-Ray (every 2 years)
 - 5. Electrocardiogram
 - 6. Eye Exam and Visual Activity
 - 7. Audiometry
 - 8. Urinalysis
 - 9. Blood Chemistry (hematology, serum analyses, heavy metals toxicology)
 - C. The medical monitoring physical must certify the ability of personnel to use air purifying respirators and to be medically able to perform specific tasks.
 - 6.2 Periodic Monitoring
 - A. Perform periodic monitoring (medical physical) for personnel working in the secure zone required within the last 12 months.
 - B. Monitoring documentation maintained on site.
 - 6.3 Site Specific Medical Monitoring
 - A. Monitoring for symptoms related to the possible exposure of harmful chemical compounds.
 - B. Physical injuries during performance of tasks covered by HASCP.
 - C. Visually monitor personnel for signs of heat or cold overexposure.
 - 6.4 Exposure/Injury/Medical Support
 - A. Make provisions for special circumstances which may require the medical attention of a physician.

7.0 FREQUENCY AND TYPES OF AIR MONITORING AND PERSONNEL AIR SAMPLING

- A. The purpose is to identify and qualify airborne contaminants in order to verify and determine the level of personal protection required.
- B. Two principal methods are used:
 - 1. Continuous air monitoring using direct reading instruments (e.g., combustible gas/oxygen meter).
 - 2. Composite air monitoring obtained by sorbet or filter (e.g. charcoal and silica geltubes or filter cassettes collected by a personal pump or high volume sampler).

7.1 Direct-Reading Monitoring Instruments

- A. Direct Reading Instruments are used in the Secure Zone.
- B. Determine Direct Reading Instrument based on anticipated contaminants.
- C. Calibrate instruments each morning and each afternoon.

7.2 Personal Sampling

- A. Based on contaminants, identify personal sampling pumps with collection tubes that may be used.

7.3 Specific Contaminants to be Monitored at Site Location

- A. Metals (Lead and Arsenic)
- B. Nuisance Dust

8.0 SITE CONTROL MEASURES

8.1 Buddy System

- A. Work in the Secure Zone is scheduled to assure no person works alone.
- B. Visual contact is maintained at all times.
- C. Buddy system is required when working on or near water hazards including the use of a life line.

8.2 Site Communications Plan

- A. Provide a communication system which includes the following elements.
 - 1. Telephones
 - 2. 2-way radios
 - 3. Hand Signals
 - 4. Verbal Communication
 - 5. Other (horns, whistles)

8.3 Work Zone Definition and Site Access Control

- A. Work zone definition incorporates the following elements:
 - 1. Exclusion Zone
 - 2. Secure Zone

3. Contaminant Reduction Zone
 4. Support Zone
 5. Control procedures to prevent unauthorized access. Requires a check-in and check-out system to control and record each employee and piece of equipment in each area.
 6. Site security procedures - (signs, sign in-/sign out procedures).
- B. Identify on the site map:
1. Exclusion zone, contaminant reduction zone, and support zone.
 2. Indicate the sizes of zones, zone boundaries, and access control points into each zone.
- 8.4 Nearest Medical Assistance
- A. Provide the name, address and telephone of nearest medical assistance and location of on-site medical assistance (if appropriate).
- B. Provide a map to nearest medical facility.
- C. Provide written directions to nearest medical facility.
- 8.5 Safe Work Practices
- A. List safe work practices that are mandatory and enforceable at site location.
- 8.6 Emergency Alarm Procedure
- Address site emergencies or occurrences that require immediate actions to prevent additional problems or harm to responders, the public, property or the environment.
- A. Establish Site Emergency Procedures
1. List names and emergency functions of on-site personnel responsible for emergency actions. Indicate training they have had.
 2. Provide communication plan and alternate means for emergency communications.
 3. List names, telephone numbers and locations of emergency organizations that might be needed.
 4. Address and define procedures for rapid evacuation of personnel.
 5. List emergency equipment.
 6. Address emergency medical care.
 7. Advise site-personnel of their duties in a emergency.
 8. Provide for emergency decontamination of injured personnel.
 9. Provide a map(s) with route(s) to nearby hospital(s) and pre-arrangements for emergency medical treatment.
- 9.0 DECONTAMINATION PLAN
- 9.1 Standard Operating Procedures
- A. Establish decontamination procedures for personnel and equipment.
- B. Arrange for proper disposal of contaminated material, solutions, and equipment.

Follow specifics as stated in Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities. NIOSH/OSHA/USCG/EPA; US Department of Health and Human Services, Public Health Service, Center for Disease Control, NIOSH; 1985.

9.2 Levels of Decontamination Protection Required for Personnel

- A. Establish the level of decontamination based on anticipated levels of contaminants.

9.3 Equipment Decontamination

- A. Establish decontamination procedures for equipment and arrange for disposal of solutions and/or equipment.

9.4 Disposition of Decontamination Wastes

- A. Establish decontamination waste disposal. This includes solutions and/or equipment.

10.0 EMERGENCY RESPONSE/CONTINGENCY PLAN

Provide an emergency Response/Contingency Plan established with following objectives:

- Pre-Emergency Planning
- Personnel Roles and Lines of Authority
- Emergency Recognition and Prevention
- Evacuation Routes and Procedures/Safe Distances
- Site Security and Control
- Emergency Decontamination Procedures
- Emergency Contact/Notification System and Altering Procedures including alternate means of communication
- Emergency Medical Treatment Procedures
- Fire or Explosion Response Procedures
- Spill or Leaks Response Procedures
- Personal Protective Equipment and Emergency Equipment

11.0 CONFINED SPACE ENTRY PROCEDURES

11.1 Define Confined Space

- A. Limited openings for entry and exit
- B. Unfavorable natural ventilation
- C. Not designed for continuous worker occupancy

11.2 General Provisions

- A. State the general provision under confined space entry.

11.3 Procedure for Confined Space Entry

- A. Provide adequate ventilation.
- B. Complete Space Entry Permit
- C. Complete air monitoring, minimum of O₂ and Combustible Gas Monitoring.

D. Complete personnel check-in/check-out entry log.

11.4 Confined Space Observer

A. Make provisions to provide an observer if confined space entry is necessary.

12.0 SPILL CONTAINMENT PROGRAM

A. Provide a spill containment program identifying possible spill potential and containment procedures and equipment.

1. List emergency contacts and phone numbers
2. List types and location of spill containment materials
3. List emergency response personnel and responsibilities

END OF SECTION

SECTION 01170

SITE OPERATIONS PLAN

PART1 GENERAL

SITE OPERATIONS PLAN OUTLINE

The Contractor shall submit with his bid a complete Site Operations Plan (SOP) for the project. The plan shall be in conformance with the obligations specified in the Site Specific Work Plan , Contaminated Soils Removal Activities, Former L.A. Darling Facility – NBFF OU2; as included and made part of Section 00800 Special Conditions of this Project Manual. The SOP shall be a document that will detail the specifics required to successfully complete the remedial action. This plan shall describe in complete detail the methods, materials, procedures, and timing the Contractor intends to use to accomplish the work required under this project. The Plan shall include all measures necessary to comply with Federal, State and Local regulations..

The SOP shall contain the following major elements at a minimum:

1.0 HEALTH AND SAFETY PLAN (HASP)

Provide a detailed Health and Safety Plan (HASP) for the site and the intended remedial action. This plan will be administered by the Contractor and it will cover all personnel at the site. The HASP must comply with appropriate federal and state legislative requirements and be prepared in accordance with the requirements in the contract specifications. Specific HASP requirements are listed below:

- A. INTRODUCTION
 - 1. Definitions
 - 2. Visitors and Zones of Remedial Activities, Non-remedial Activities, and Decontamination
- B. IDENTIFICATION OF KEY HEALTH AND SAFETY PERSONNEL
- C. TASK/OPERATION SAFETY AND HEALTH RISK ANALYSIS
 - 1. Potential Hazards
 - 2. Hazard Analysis
 - 3. Task Hazard Description
 - a. Air Sampling/Monitoring
 - b. Soil and Sediment Sampling
 - 4. Physical Hazards
 - 5. Biological Hazards
 - 6. Drilling Hazards
 - 7. Unanticipated Hazards
 - 8. General Safety Procedures
 - 9. Procedures for Weather-Related Problems
 - 10. Temporary Shutdown/Force Majeure
- D. PERSONNEL TRAINING REQUIREMENTS
 - 1. Training Required
 - 2. Training and Briefing Topics for Site Activities at Weekly Meetings
- E. PERSONAL PROTECTIVE EQUIPMENT TO BE USED
 - 1. Personal Protection/Instruction

2. Levels of Personal Protection Required
 3. Reassessment of Protection Program
 4. Work Mission Duration
 5. Chemical Resistance and Integrity of Protective Material
 6. Inspection of Protective Equipment
 7. Specific Levels of Protection Planned for the Site
- F. MEDICAL SURVEILLANCE REQUIREMENTS
1. Medical Monitoring
 2. Periodic Monitoring
 3. Site Specific Medical Monitoring
 4. Exposure/Injury/Medical Support
 5. Exit Physical
- G. FREQUENCY AND TYPES OF PERSONAL AIR MONITORING/SAMPLING
1. Monitoring for Personal Protection
 2. Site Air Monitoring and Sampling Program Action Levels
- H. SITE CONTROL MEASURES
1. Secure Areas
 2. Site Communications Plan
 3. Medical Emergency Response
 4. Nearest Medical Facility
 5. Safe Work Practices
 6. Emergency Alarm Procedures
- I. DECONTAMINATION PLAN
1. Decontamination
 2. Establishing a Decontamination Center
 - a. Introduction
 - b. Decontamination Plan
 - c. Prevention of Contamination
 - d. Types of Contaminants
 - e. Decontamination Methods
 - f. Testing the Effectiveness of Decontamination
 - g. Decontamination Facilities Design(s)
 - h. Decontamination Equipment Selection
 - i. Personal Protection
 - j. Emergency Decontamination
- J. EMERGENCY RESPONSE/CONTINGENCY PLAN
1. Accident and Emergency Response Procedures
 2. Required Emergency Contacts/Lines of Authority/Organizations of Assistance
 3. Emergency Recognition and Prevention
 4. Evacuation Routes and Procedures
 5. Incident Reporting
 6. Emergency Medical Treatment Procedures
 7. Fire or Explosion
 8. Spill and Leaks

2.0 QUALITY ASSURANCE PLAN

Provide a quality assurance plan (QAP) to cover physical and chemical testing, sampling, and analyses that the Contractor must perform to ensure that the work meets the specified requirements. There are several activities which require detailed quality control/quality assurance (QC/QA) testing. This testing must be performed to ensure that the work meets the needed specifications.

3.0 SCHEDULE

Provide a detailed schedule with recognizable milestones of all construction activities anticipated to complete the work. The schedule shall cover everything from mobilization through de-mobilization. The contractor must notify the Owner and Engineer at his earliest knowledge that a delay might occur. The reason(s) for the delay and the impact of the delay on the Remedial Action Schedule must be provided.

4.0 STORM WATER MANAGEMENT PLAN

Provide a detailed Drainage and Stormwater Management Plan for the site during construction activities. The plan must describe measures to be taken by the Contractor to prevent surface and rain waters from entering or leaving remediation areas, and steps to be taken to remove, analyze, treat, and dispose of surface waters which do enter remediation areas. The Plan must be submitted with the SOP, before site mobilization.

5.0 SITE REMEDIATION CONTINGENCY PLAN

Provide a Site Remediation Contingency Plan which includes a Spill Control and Countermeasures Plan. The Spill Control and Countermeasures Plan shall include containment and remediation for waste material spills during excavation, transport, treatment in accordance with 40 CFR 264, subtitle D.

6.0 PHASE OPERATIONS PLAN REQUIREMENTS

Provide detailed descriptions of the proposed methods for constructing each "discrete" Phase of the Contaminated Soils Removal Activities. Each Phase shall include details regarding the items below:

A. PHASE I: MOBILIZATION

1. Stabilize and widen existing access roads for construction traffic.
2. Construct any required new roads after the initial survey work.
3. Identify underground and overhead utilities and obstacles and stabilize the ground to support the construction road traffic.
4. Construct the temporary facilities for personnel, personnel decontamination facilities, parking, etc.
5. Construct decontamination pad as detailed.
6. Site Security
7. Preparation of truck loading area including ground cover, pile cover, area required, transportation to and from stockpile.
9. Selection of off-site stabilization and disposal facilities.

B. PHASE II: REMEDIAL AREA PREPARATION

1. Dewater all work areas prior to construction. Reroute site drainage patterns, as necessary. Construct the stormwater management facilities as required by the Drainage and Stormwater Management Plan.
2. Survey and stake limits of work as delineated by the Owner or his representative. A benchmark within each contaminated area will be identified by the Owner's field engineer before excavation. At that time a grid system will be created explicitly providing the Contractor with the defined limits of excavation shown in the Site Specific Work Plan (SSWP) Drawings. The contractor is required to provide a surveyor, licensed in Michigan, to stake the limits shown on the Plan Sheets. The Owner's surveyor will check these limits for accuracy.
3. Clear trees, vegetation and any other debris within the limits of work. Dispose of this material as specified in the Specifications. Construct all erosion and sediment control facilities in conjunction with clearing activities.

C. PHASE III: EXCAVATION

1. Detail the equipment needed and the procedure(s) to be used to excavate the work area to the limits shown on the SSWP drawings in the Specifications and within the grid established by the Owner's Engineer. Phase III work shall be performed sequentially by work area, proceeding with the Former Chemical Material Staging Area, the Lead Hot Spot, the Former TCE Degreaser and Sludge Lagoon Area and lastly with the Contaminated Soils and Structures in the Abandoned Railroad Street, working east to west across the right of way.
2. Detail verification sampling in conformance with the remedial verification work plan, specified in the Specifications.
3. Method of backfill, sources of borrow, compaction requirements.
4. Stormwater Management
5. Restoration of remediated areas

D. PHASE IV: STABILIZATION and ULTIMATE DISPOSAL OPERATIONS

The Contractor shall specify the location and process used in the stabilization of the excavated contaminated materials removed from the Site. The conformance with applicable local, state and federal regulations governing the transportation, stabilization and disposal of this material shall be documented to the satisfaction of the Owner and the U. S. EPA. Data concerning the effectiveness of the stabilization of the contaminated materials shall be submitted to the Owner for approval. The location and operation of the Contractor's proposed landfill for the stabilized materials shall also require approval of the Owner and U.S.EPA.

F. PHASE VI: RAILROAD STREET RECONSTRUCTION AND DEMOBILIZATION

The Contractor shall reconstruct the previously abandoned Railroad Street in conformance with the specifications contained in the Project Manual, standard details and as directed by the Engineer. All types of utilities (both above and below ground), surfaces, sidewalks, curbs, gutters, culverts and other features disturbed, damaged or destroyed during the remediation work under or as a result of the operations of the Contract, shall be restored and maintained, as described in the provisions of the Specifications. Those activities shall include:

1. Equipment, decontamination pads and materials used for remediation shall be cleanup/disposal properly.
2. All roads, driveways and similar surfaces that have been disturbed or damaged due to remediation work shall be restored as the original condition.
3. Revegetation
4. Site cleanup

PART 2 - PRODUCTS

- A. Not Used

PART 3 - EXECUTION

- A. Contractor shall submit the full Site Operations Plan (SOP) with his bid. The Owner reserves the right to request modifications to the SOP in order to meet the requirements of U.S. EPA.
- B. Modifications shall be made to the SOP within the time frame of the bid reviews by the Owner.

END OF SECTION

SECTION 01180

CONSTRUCTION MANAGEMENT PLAN

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. The Construction Management Plan (CMP) which will be delivered to and approved by the Owner and the Engineer prior to any work proceeding at the Site.
- B. The plan shall address the following activities of the Contractor:
 - 1. Conformance with regulatory requirements
 - 2. Project coordination with the Owner's agents performing verification sampling, inspection and health and safety testing.
 - 3. Scheduling of the remediation activities proposed by the Contractor. The Contractor's activities shall be detailed with a critical path to monitor progress milestones.
 - 4. Contingency plans to address project delays and unforeseen problems encountered at the site.
- C. The plan will be used on the Site as a guide for the evaluation of the performance of the Contractor in the execution of the Work on the project.

1.2 RELATED SECTIONS

- A. Section 01010 - Summary of Work
- B. Section 01110 - Environmental Protection
- C. Section 01170 - Site Operations Plan

PART 2 PRODUCTS

- A. Not Used.

PART 3 EXECUTION

- A. Not Used.

END OF SECTION

SECTION 01300

SUBMITTALS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Submittal procedures.
- B. Construction progress schedules.
- C. Shop drawings.
- D. Construction material photographs.

1.2 RELATED SECTIONS

- A. Section 01700 - Contract Closeout.

1.3 SUBMITTAL PROCEDURES

- A. Transmit each submittal with Engineer accepted form.
- B. Sequentially number the transmittal forms. Resubmittals to have original number with an alphabetic suffix.
- C. Identify Project, Contractor, Subcontractor or supplier; pertinent Drawing sheet and detail number(s), and specification Section number, as appropriate.
- D. Apply Contractor's stamp, signed or initialed certifying that review, verification of Products required, field dimensions, adjacent construction Work, and coordination of information, is in accordance with the requirements of the Work and Contract Documents.
- E. Schedule submittals to expedite the Project, and deliver to Engineer.
- F. Identify variations from Contract Documents and Product or system limitations which may be detrimental to successful performance of the completed Work.
- G. Provide space for Contractor and Engineer review stamps.
- H. Revise and resubmit submittals as required, identify all changes made since previous submittal.
- I. Distribute copies of reviewed submittals to concerned parties. Instruct parties to promptly report any inability to comply with provisions.

1.4 CONSTRUCTION PROGRESS SCHEDULES

- A. Submit initial progress schedule in duplicate within 15 days after date of Owner-Contractor Agreement Engineer review.
- B. Revise and resubmit as required.
- C. Submit revised schedules with each Application for Payment, identifying changes since previous version.
- D. Submit a computer generated chart with separate line for each major section of Work or operation, identifying first work day of each week.
- E. Show complete sequence of construction by activity, identifying Work of separate stages and other logically grouped activities. Indicate the early and late start, early and late finish, float dates, and duration.
- F. Indicate estimated percentage of completion for each item of Work at each submission.

1.5 SHOP DRAWINGS

- A. Submit the number of opaque reproductions which Contractor requires, plus two copies which will be retained by Engineer.
- B. Identify photographs with date, time, orientation and project identification.

PART 2 PRODUCTS

- A. Not Used

PART 1 EXECUTION

- A. Not used

END OF SECTION

SECTION 01310
PROGRESS SCHEDULES

PART1 GENERAL

1.1 SECTION INCLUDES

- A. Format.
- B. Content.
- C. Revisions to schedules.
- D. Submittals.

1.2 RELATED SECTIONS

- A. Section 01010 - Summary of Work.
- B. Section 01300 - Submittals.

1.3 FORMAT

- A. Prepare Schedules as a horizontal bar chart with separate bar for each major portion of Work or operation, identifying first work day of each week.
- B. Sequence of Listings: The chronological order of the start of each item of Work.
- C. Scale and Spacing: To provide space for notations and revisions.
- D. Sheet Size: Multiples of 8-1/2 x 11 inches.

1.4 CONTENT

- A. Show complete sequence of construction by activity, with dates for beginning and completion of each element of construction.
- B. Show accumulated percentage of completion of each item, and total percentage of Work completed, as of the first day of each month.

1.5 REVISIONS TO SCHEDULES

- A. Indicate progress of each activity to date of submittal, and projected completion date of each activity.
- B. Identify activities modified since previous submittal, major changes in scope, and other identifiable changes.
- C. Provide narrative report to define problem areas, anticipated delays, and impact on Schedule. Report corrective action taken, or proposed, and its effect.

1.6 SUBMITTALS

- A. Submit initial Schedule within 15 days after date of Owner-Contractor Agreement. Review, resubmit required revised data within ten days.
- B. Submit revised Progress Schedules with each Application for Payment.
- C. Submit three opaque reproductions.

1.7 DISTRIBUTION

- A. Distribute copies of reviewed Schedules to project site file, Subcontractors, suppliers, and other concerned parties.
- B. Instruct recipients to promptly report, in writing, problems anticipated by projections indicated in Schedules.

PART 2 PRODUCTS

PART 3 EXECUTION

- 1. Not Used

END OF SECTION

SECTION 01400

QUALITY CONTROL

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Site Operations Plan.
- B. Quality assurance and control of construction.
- C. Quality assurance and control of operation.
- D. Field sample procedures.
- E. Inspection and testing laboratory services.

1.2 RELATED SECTIONS

- A. Section 01090 - Reference Standards.
- B. Section 01300 - Submittals.
- C. Section 01410 - Testing Laboratory Services.

1.3 SITE OPERATIONS PLAN

- A. All phases of the work and all work elements shall be part of the Site Operations Plan.
- B. Submit Site Operations Plan for review and comment include:
 - 1. Excavation Methods and Control.
 - 2. Off-site Transportation and Disposal Locations and Control.
 - 3. Equipment and Sub-contractor List.
 - 4. Operation Schedule with Milestones.
 - 5. Health and Safety Plan.
 - 6. QA and Control of Operations Plan.
- C. Site Operations Plan shall be final when all comments have been clarified.
- D. Copies of the Final Site Operations Plan shall be provided to the Engineer, Site Safety Officer, Contractor, and Security.
- E. Provide copies of the Final Site Operations plan to Contractor's personnel as required.

1.4 QUALITY ASSURANCE AND CONTROL OF CONSTRUCTION

- A. Monitor quality control over suppliers, manufacturers, products, services, site conditions, and workmanship, to produce Work of specified quality.

- B. Comply with specified standards as a minimum quality for the Work except when more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.
- C. Perform work by persons qualified to produce workmanship of specified quality.
- D. Monitor Final Site Operations Plan.

1.5 QUALITY ASSURANCE AND CONTROL OF OPERATIONS

- A. Contractor shall either provide access for or perform all sampling, as noted below:
- B. Ambient Air Sampling – Performed By Owner
 - 1. Ambient Air Sampling Operations Plan, including:
 - a) Description of sampling coordination with excavation and treatment.
 - b) Provide sample times, analyses of interest, and analytical methods.
 - c) Locate air sampling equipment on plan.
- C. Treated Soil Sampling and Analysis – Contractor Requirement
 - 1. Submit Sampling and Analysis Operations Plan, including:
 - a) Description of the work being performed for chemical profiling and verification of non-hazardous off-site disposal.
 - b) Description of the sampling methodology.
 - c) Description of the analyses of concern, residual allowable limits, and testing method.
 - 2. Plan shall comply with the Site Sampling Plan Procedures.
- D. Hazardous Waste Excavation – Performed by Owner - Access Provided by Contractor
 - 1. Submit Sampling and Analysis Plan, including:
 - a) Description of the work being performed.
 - b) Reference drawings.
 - c) Description of the analyses of concern, residual allowable limits, and testing method for each as defined in the Consent Order applicable sections.
 - d) Description of the sampling methodology.
 - 2. Plan shall comply with the Field Sampling Procedures.
- E. Sample Distribution
 - 1. Each Sample may be split.
 - 2. The split, if required, shall be as follows:

a) EPA Representatives	1
b) Owners Testing Laboratory	1
c) Contractor	As required
 - 3. Contractor shall coordinate sampling and split with the Engineer and the EPA.
- F. When the Contractor uses an off-site disposal unit for the disposal of the stabilized contaminated materials from the site, he shall obtain from the facility: the name and USEPA identification number, location, contact person and a

written confirmation of their willingness to accept the waste and that they have adequate capacity for same.

1.6 FIELD SAMPLING PROCEDURES

- A. Contractor shall provide access for the Owner's representative to take samples as prescribed in the accepted Site Operations Plan. Variations from the Plan are prohibited unless agreed to by all Parties prior to taking the sample.

1.7 INSPECTION AND TESTING LABORATORY SERVICES

- A. Contractor shall appoint, employ, and pay for services of an independent firm to perform inspection and testing, as required.
- B. The independent firm will perform inspections, tests, and other services specified in individual specification Sections and as required by the Contractor.
- C. Reports will be submitted by the independent firm to the Contractor, indicating observations, results of tests, and indicating compliance or non-compliance with Contract Documents.
- D. Contractor shall cooperate with independent firm; furnish samples of materials, design mix, equipment, tools, storage and assistance as requested. He shall also make arrangements with independent firm and pay for additional samples and tests required for Contractor's use.
- E. Retesting required because of non-conformance to specified requirements shall be performed by the same independent firm. Payment for retesting will not be paid for by the Owner.

1.8 HEALTH AND SAFETY PROCEDURES

- A. The HASP criteria shall be adhered to at all times.
- B. All work must be in compliance with the accepted HASP portion of the Site Operations Plan.

END OF SECTION

SECTION 01410

TESTING LABORATORY SERVICES

PART1 GENERAL

1.1 SECTION INCLUDES

- A. References.
- B. Laboratory responsibilities.
- C. Laboratory reports.
- D. Limits on testing laboratory authority.
- E. Schedule of inspections and tests.

1.2 RELATED SECTIONS

- A. Document: Site Operations Plan
- B. Document: HASP
- C. Section 01400 - Quality Control.
- D. Individual Specification Sections: Inspections and tests required, and standards for testing.

1.3 REFERENCES

- A. ANSI/ASTM D3740 - Practice for Evaluation of Agencies Engaged in Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction.
- B. ANSI/ASTM E329 - Recommended Practice for Inspection and Testing Agencies for Concrete, Steel, and Bituminous Materials as Used in Construction.

1.4 QUALITY ASSURANCE

- A. Comply with requirements of ANSI/ASTM E329 and ANSI/ASTM D3740.
- B. Laboratory: Authorized and certified to operate in Michigan.
- C. Laboratory Staff: Maintain a full time registered Chemist on staff to review services.
- D. Testing Equipment: Calibrated at reasonable intervals with devices of an accuracy traceable to either National Bureau of Standards (NBS) Standards or accepted values of natural physical constants.

1.5 LABORATORY RESPONSIBILITIES

- A. Test samples of materials submitted by Contractor.
- B. Provide qualified personnel at site as required. Cooperate with Contractor in performance of services.

- C. Perform specified inspection, sampling, and testing of Products in accordance with specified standards.
- D. Ascertain compliance of materials and mixes with requirements of Contract Documents.
- E. Promptly notify Contractor of observed irregularities or non-conformance of Work or Products.
- F. Perform additional inspections and tests as required by Contractor.
- G. Attend preconstruction conference, Lab testing meeting and progress meetings, as required.

1.6 LABORATORY REPORTS

- A. After each inspection and test, promptly submit four copies of laboratory report to Contractor.
- B. Include:
 - 1. Date issued,
 - 2. Project title and number,
 - 3. Name of inspector or test performer,
 - 4. Date and time of sampling or inspection,
 - 5. Identification of product and Specifications Section,
 - 6. Location- in the Project,
 - 7. Type of inspection or test,
 - 8. Date of test,
 - 9. Results of tests,
 - 10. Conformance with Contract Documents.
- C. When requested by Contractor or Engineer provide interpretation of test results.

1.7 LIMITS ON TESTING LABORATORY AUTHORITY

- A. Laboratory shall not release, revoke, alter, or enlarge on requirements of Contract Documents.
- B. Laboratory shall not approve or accept any portion of the Work.
- C. Laboratory shall not assume any duties of Contractor.
- D. Laboratory has no authority to stop the Work.

1.8 CONTRACTORS RESPONSIBILITIES

- A. Deliver to laboratory at designated location, adequate samples of materials proposed to be used which require testing, along with any additional information.
- B. Cooperate with laboratory personnel.
- C. Provide incidental labor and facilities, to obtain and handle samples at the site or at source of products to be tested, to facilitate tests and inspections, storage and curing of test samples.

1.9 SCHEDULE OF INSPECTIONS AND TESTS

- A. Test results to be returned within an agreed to time from the receipt of the of the sample.
- B. Samples for soil remediation (chemical profiling and stabilization) shall be taken every 100 cubic yards or daily which ever occurs first. The sample shall be taken using the type shown in figure 1 of Method 1310, or equal. Each sample shall be crushed prior to extraction by the following method:
 - a. Remove sample from the container or mold.
 - b. Place sample into a new, sealable plastic bag and seal.
 - c. Place sample between two square sheets of 1 cm thick teflon.
 - d. Crush sample either manually or with a hammer.
 - e. Open bag and gently shake sample through a 9.5 mm sieve, catching materials which pass through the sieve.
 - f. Repeat steps b. through e. until all of the sample passes through the sieve.
- C. Samples shall be taken by the Owner's representatives and/or the U.S. EPA along the sidewalls and at the base of all excavations when the limits and elevations shown on the drawings are reached. If additional sampling is required because the soils test above the contamination limit, these additional samples shall be taken when the excavation has been expanded and/or lowered as directed by the Engineer. Payment for providing access for the additional sampling shall be included as part of the unit prices listed on the bid form for the remediation work.

END OF SECTION

SECTION 01500

CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Temporary Utilities: Electricity, lighting, heat, ventilation, telephone service, water and sanitary facilities.
- B. Temporary Controls: Barriers, enclosures and fencing, protection of the Work and water control.
- C. Construction Facilities: Access roads, parking, progress cleaning, project signage and temporary buildings.

1.2 RELATED SECTIONS

- A. Section 01540 - Security.
- B. Section 01560 - Temporary Controls.
- C. Section 01570 - Traffic Regulation.
- D. Section 01580 - Project Identification and Signs.
- E. Section 01590 - Field Offices.
- F. Section 01700 - Contract Closeout: Final cleaning.

1.3 TEMPORARY ELECTRICITY

- A. Provide and pay for power service required from Utility source.

1.4 TEMPORARY LIGHTING

- A. Provide and maintain incandescent lighting for construction operations to achieve a minimum lighting level of 2 watt/sq ft.
- B. Provide and maintain 1 watt/sq ft lighting to exterior staging and storage areas after dark for security purposes.
- C. Provide and maintain 0.25 watt/sq ft H.I.D. lighting to interior work areas after dark for security purposes.
- D. Provide branch wiring from power source to distribution boxes with lighting conductors, pigtails, and lamps as required.
- E. Maintain lighting and provide routine repairs.
- F. Permanent building lighting may not be utilized during construction.

1.5 TEMPORARY VENTILATION

- A. Ventilate enclosed areas to assist cure of materials, to dissipate humidity, and to prevent accumulation of dust, fumes, vapors, or gases.
- B. Utilize existing ventilation equipment. Extend and supplement equipment with temporary fan units as required to maintain clean air for construction operations.

1.6 TELEPHONE SERVICE

- A. Provide, maintain and pay for telephone service to contractor's field office at time of project mobilization.
- B. Provide Engineer, Owner and/or U.S. EPA personnel access to and reasonable use of Contractor's telephone service at no charge

1.7 TEMPORARY WATER SERVICE

- A. Provide, maintain and pay for suitable quality water service required for construction operations.

1.8 TEMPORARY SANITARY AND DECONTAMINATION FACILITIES

- A. Provide and maintain required facilities and enclosures to include:
 - 1. Temporary restrooms.
 - 2. Change rooms.
 - 3. Shower facilities.
- B. There are no existing facilities on the Site.

1.9 BARRIERS

- A. Provide barriers, to prevent unauthorized entry to construction areas and to protect existing facilities and adjacent properties from damage from construction operations.
- B. Provide barricades and covered walkways required by governing authorities for public rights-of-way and for public access.
- C. Provide protection for plant life designated to remain. Replace damaged plant life.
- D. Protect non-owned vehicular traffic, stored materials, site and structures from damage.

1.10 FENCING

- A. Construction: Commercial grade chain link fence.
- B. Maintenance: Maintain existing chain link fencing at site as directed by Engineer.

1.11 EXTERIOR ENCLOSURES

- A. Provide temporary insulated weather-tight closure of exterior openings to accommodate acceptable working conditions and protection for Products, to allow for temporary heating

and maintenance of required ambient temperatures identified in individual specification Sections, and to prevent entry of unauthorized persons. Provide access doors with self-closing hardware and locks.

1.12 PROTECTION OF INSTALLED WORK

- A. Protect installed Work and provide special protection where specified in individual specification Sections.
- B. Prohibit traffic from landscaped areas.

1.13 ACCESS ROADS

- A. Construct and maintain temporary roads accessing public thoroughfares to serve construction area.
- B. Provide and maintain access to fire hydrants, free of obstructions.
- C. Provide means of cleaning vehicle wheels.

1.14 PARKING

- A. Arrange for, provide and construct temporary gravel surface parking areas to accommodate construction personnel.
- B. When site space is not adequate, provide additional off-site parking.
- C. Designate one parking space each for the Owner and Engineer.

1.15 PROGRESS CLEANING

- A. Maintain areas free of waste materials, debris, and rubbish. Maintain site in a clean and orderly condition.
- B. Remove all non-contaminated/non-hazardous waste materials, debris, and rubbish from site weekly and dispose off-site in an approved facility.
- C. Execute daily cleaning of the site to collect all accumulated contaminated material, including discarded health and safety equipment.
- D. Execute periodic cleaning to keep the site free from accumulation of contaminated/hazardous and non-contaminated/non-hazardous debris. Clearly label containers to identify contents and to prohibit the improper disposal of any material.

1.16 REMOVAL OF UTILITIES, FACILITIES, AND CONTROLS

- A. Remove temporary above grade or buried utilities, equipment, facilities, materials, prior to Substantial Completion inspection.
- B. Clean and repair damage caused by installation or use of temporary work.
- C. Restore existing facilities used during construction to original condition. Restore permanent

facilities used during construction to specified condition.

PART 2 PRODUCTS

A. Not Used

PART 3 EXECUTION

A. Not Used

END OF SECTION

SECTION 01540

SECURITY

PART 1. GENERAL

1.1 SECTION INCLUDES

- A. Security Program.
- B. Entry Control.
- C. Personnel Identification.
- D. Project Site Security Protocol.
- E. Work Area Security.
- F. Miscellaneous Restrictions.

1.2 RELATED SECTIONS

- A. Section 01010 - Summary of Work.
- B. Section 01160 - Health and Safety/Contingency Plan
- C. Section 01500 - Construction Facilities and Temporary Controls: Temporary lighting, Barriers and enclosures.

1.3 SECURITY PROGRAM

- A. Protect Work and Owner's operations from theft, vandalism, and unauthorized entry.
- B. Maintain program throughout construction period on a **24 hour/day - 7 days/week basis** until Owner acceptance precludes the need for Contractor security.

1.4 ENTRY CONTROL

- A. Restrict entrance of persons and vehicles into Project site.
- B. Allow entrance only to authorized persons with proper identification.
- C. Maintain log of workmen and visitors, make available to Owner on request.
- D. Coordinate access of Owner's and any Regulatory Agency personnel to site.

2.5 PERSONNEL IDENTIFICATION

- A. Provide identification badge to each person authorized to enter premises.
- B. Badge to include: Name and employer.
- C. Badges must be displayed at all times when on the work site.

- D. Maintain a list of accredited persons, submit copy to Owner on request.

1.6 PROJECT SITE SECURITY PROTOCOL

- A. Develop project site security protocol and submit to Engineer for review within 10 days after receipt of Notice to Proceed. Include the following items at a minimum:
 - 1. Personal responsible for implementing and maintaining continuous **(24 hour/day - 7 days/week basis)** security measures at the Project Site including names and assigned functions.
 - 2. Description of proposed daily security operations.
 - 3. Description of proposed methods and frequency of security checks at the Project Site.
 - 4. Description of proposed methods for responding to the following breaches in security:
 - a. Entry of unauthorized personnel onto the Project Site.
 - b. Site boundary security provisions are breached.
 - c. Attempted entry of unauthorized personnel onto Project Site.

1.7 RESTRICTIONS

- A. Do not allow cameras on site or photographs taken except by written approval of Owner.
- B. The Contractor shall provide security in the form of additional security fence systems, as required around the construction and exclusion zones to restrict access by unauthorized personnel.

PART 3 PRODUCTS

- A. Not Used

PART 4 EXECUTION

- A. Not Used

END OF SECTION

SECTION 01560

TEMPORARY CONTROLS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Water Control.
- B. Dust Control.
- C. Erosion and Sediment Control.

1.2 RELATED SECTIONS

- A. Section 01010 - Summary of Work.
- B. Section 01039 - Coordination and Meetings: Project coordination.
- C. Section 01500 - Construction Facilities and Temporary Controls: Temporary water control, construction cleaning.

1.3 STORM WATER CONTROL

- A. Grade site to drain. Maintain excavations free of water. Provide, operate, and maintain pumping equipment.
- B. Protect site from puddling or running water. Provide water barriers as required to protect site from soil erosion.

1.4 DUST CONTROL

- A. Execute Work by methods (i.e. watering) to minimize visible dust in the air due to the construction operations.
- B. Provide positive means to prevent air-borne dust from dispersing into atmosphere.
- C. In the event it becomes necessary in the opinion of the Owner, Engineer or the Health and Safety Officer to provide the watering of surfaces to control the release of dust, such watering shall be immediately implemented by the Contractor.
- D. Water runoff shall be avoided by limiting water flows to the minimum required for dust control.
- E. The Owner, Engineer or the Health and Safety Officer may suspend the Work at any time in a given remedial zone if necessary due to adverse weather conditions which may imperil worker safety. Should such conditions exist, it is the sole responsibility of the Contractor to implement a suspension of the Work. Adverse conditions include but are not limited to lightning, high winds, or severe rainfall.

1.5 EROSION AND SEDIMENT CONTROL

- A. Plan and execute construction by methods to control surface drainage from cut and fill

areas, from borrow areas and waste disposal areas. Prevent erosion and sedimentation.

- B. Minimize amount of bare soil exposed at one time.
- C. Provide temporary measures such as berms, dikes, straw bale bulkheads and drains, to prevent water flow.
- D. Construct fill and waste areas by selective placement to avoid erosive surface silts or clays.
- E. Periodically inspect earthwork to detect evidence of erosion and sedimentation; promptly apply corrective measures.

PART 2 PRODUCTS

- A. Not Used

PART 3 EXECUTION

- A. Not Used

END OF SECTION

SECTION 01570
TRAFFIC REGULATION

PART 1. GENERAL

1.1 SECTION INCLUDES

- A. Construction Parking Control.
- B. Flagmen.
- C. Flares and Lights.
- D. Haul Routes.
- E. Traffic Signs and Signals.
- F. Removal.

1.2 RELATED SECTIONS

- A. Section 01010 - Summary of Work.
- B. Section 01040 - Project coordination.
- C. Section 01500 - Construction Facilities and Temporary Controls: Barriers and enclosures, Access roads and parking areas.
- D. Section 01580 - Project Identification and Signs.

1.3 SIGNS, SIGNALS, AND DEVICES

- A. Post Mounted and Wall Mounted Traffic Control and Informational Signs: Specified in Section 01580.
- B. Flagman Equipment: As approved by local jurisdictions.

1.4 CONSTRUCTION PARKING CONTROL

- A. Control vehicular parking to prevent interference with public traffic and parking, access by emergency vehicles, and Owner's operations.
- B. Monitor parking of construction personnel's vehicles. Maintain vehicular access to and through parking areas.
- C. Prevent parking on or adjacent to access roads or in non-designated areas.

1.5 FLAGMEN

- A. Provide trained and equipped flagmen to regulate traffic when construction operations or traffic encroach on public traffic lanes.

1.6 FLARES AND LIGHTS

- A. Use flares and lights during hours of low visibility to delineate traffic lanes and to guide traffic.

1.7 HAUL ROUTES

- A. Consult with authority having jurisdiction in establishing public thoroughfares to be used for haul routes and site access.

1.8 TRAFFIC SIGNS AND SIGNALS

- A. At approaches to site and on site, install at crossroads, detours, parking areas, and elsewhere as needed to direct construction and affected public traffic.

1.9 REMOVAL

- A. Remove equipment and devices when no longer required.
- B. Repair damage caused by installation.

PART 2. PRODUCTS

- A. Not Used

PART 3. EXECUTION

- A. Not Used

END OF SECTION

SECTION 01590

FIELD OFFICES

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Temporary Field Offices.
- B. Maintenance and Cleaning.
- C. Removal.

1.2 RELATED SECTIONS

- A. Section 01010 - Summary of Work.
- B. Section 01110 - Environmental Protection.
- C. Section 01160 - Health and Safety/Contingency Plan.
- D. Section 01500 - Construction Facilities and Temporary Controls: Temporary electricity, temporary sanitary facilities, temporary telephone and access roads and parking areas.
- E. Section 01580 - Project Identification and Signs.
- F. Section 01600 - Material and Equipment: Storage and protection.

1.3 USE OF EXISTING FACILITIES

- A. Designated areas may be used for field offices.

1.4 USE OF PERMANENT FACILITIES

- A. Permanent facilities shall not be used for field offices or for storage.

PART 2 PRODUCTS

2.5 MATERIALS, EQUIPMENT, FURNISHINGS

- A. Materials, Equipment, Furnishings: Serviceable, new or used, adequate for required purpose.

PART 3 EXECUTION

3.5 PREPARATION

- A. Fill and grade sites for temporary structures to provide drainage away from buildings.

3.6 INSTALLATION

- A. Install office spaces ready for occupancy 10 days after date fixed in Notice to Proceed.

- B. Employee Residential Occupancy: Not allowed on Owner's Property.

3.7 CONSTRUCTION

- A. Portable or mobile buildings, or buildings constructed with floors raised above ground, securely fixed to foundations, with steps and landings at entrance doors.
- B. Construction: Structurally sound, secure, weathertight enclosures for office and storage spaces. Maintain during progress of Work; remove when no longer needed.
- C. Temperature Transmission Resistance of Floors, Walls, and Ceilings: Compatible with occupancy and storage requirements.
- D. Lighting for Offices: 50 ft-C at desk-top height, exterior lighting at entrance doors.
- E. Fire Extinguishers: Appropriate type fire extinguisher at each office and each storage area.

3.8 ENVIRONMENTAL CONTROL

- A. Heating, Cooling, and Ventilating for Offices: Automatic equipment to maintain 68 degrees F heating and 76 degrees F cooling.
- B. Storage Spaces: Heating and Ventilation as needed to maintain products in accordance with Contract Documents; adequate lighting for maintenance and inspection of products.

3.5 PERSONNEL DECONTAMINATION FACILITY

- A. Provide a shelter divided into two sections, one area being a contaminated dressing room and the other being a clean dressing room. Locate in the Contaminated Reduction Zone.
- B. Size to accommodate the largest number of employees expected on site at one time.
- C. Benches and lockers shall be provided to accommodate the largest number of employees expected on site at one time.
- D. Light, heat and ventilation shall be provided according to local codes. Air conditioning shall also be provided. The facility shall be maintained at a positive pressure compared to outdoor conditions.
- E. Shower and handwashing facilities shall be between the contaminated and clean sides of the Personnel Decontamination Facility.
- F. An emergency shower/eye wash shall be provided within the contamination reduction zone.
- G. All wash waters shall be collected, stored and managed as appropriate, and disposed of as outlined in Section 01110, Environmental Protection.

3.6 CONTRACTOR OFFICE AND FACILITIES

- A. Size: For Contractor's needs.
- B. Telephone: As specified in Section 01500.
- C. Other Furnishings: Contractor's option.

3.7 ENGINEERS OFFICE - DELETED

3.8 U.S. EPA OFFICE - DELETED

3.9 MAINTENANCE AND CLEANING

A. Weekly janitorial services for offices; periodic cleaning and maintenance for office and storage areas.

B. Maintain approach walks free of mud, water, and snow.

3.10 REMOVAL

A. At completion of Work remove buildings, foundations, utility services, and debris. Restore areas.

END OF SECTION

SECTION 01700

CONTRACT CLOSEOUT

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Closeout procedures.
- B. Final cleaning.
- C. Project record documents.

1.2 RELATED SECTIONS

- A. Section 01500 - Construction Facilities and Temporary Controls: Progress cleaning.

1.3 CLOSEOUT PROCEDURES

- A. Submit written certification that Contract Documents have been reviewed, Work has been inspected, and that Work is complete in accordance with Contract Documents and ready for Engineer's inspection.
- B. Provide submittals to Engineer that are required by governing or other authorities.
- C. Submit final Application for Payment identifying total adjusted Contract Sum, previous payments, and sum remaining due.

1.4 FINAL CLEANING

- A. Execute final cleaning prior to final inspection.
- B. Clean site; sweep paved areas, rake clean landscaped surfaces.
- C. Remove waste and surplus materials, rubbish, and construction facilities from the site.

1.5 PROJECT RECORD DOCUMENTS

- A. Maintain on site, one set of the following record documents; record actual revisions to the Work:
 - 1. Contract Drawings.
 - 2. Specifications.
 - 3. Addenda.
 - 4. Change Orders and other Modifications to the Contract.
- B. Store Record Documents separate from documents used for construction.
- C. Record information concurrent with construction progress.
- D. Record Documents: Legibly mark each item to record actual construction including:
 - 1. Measured depths of excavation in relation to finish grade.
 - 2. Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.

3. Measured locations of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of the Work.
 4. Field changes of dimension and detail.
 5. Details not on original Contract Drawings.
- E. Delete Engineer title block and seal all documents.
- F. Submit documents to Engineer with claim for final Application for Payment.

PART 2 PRODUCTS

- A. Not used

PART 3 EXECUTION

- A. Not used

END OF SECTION

SECTION 02110

SITE CLEARING

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Remove surface debris.
- B. Remove paving and curbs.
- C. Remove Fences.
- D. Clear site of plant life and grass.
- E. Remove trees and shrubs.
- F. Remove root system of trees and shrub.
- G. Topsoil excavation.

1.2 RELATED SECTIONS

- A. Section 02211 - Rough Grading.

1.3 REGULATORY REQUIREMENTS

- A. Conform to applicable Federal, State, County, and local codes for disposal of debris.
- B. Coordinate clearing Work with utility companies.

PART 2 EXECUTION

2.1 PREPARATION

- A. Verify that existing plant life designated to remain, is tagged or identified.

2.2 PROTECTION

- A. Locate, identify, and protect utilities that remain, from damage.
- B. Protect trees, plant growth, and features designated to remain, as final landscaping.
- C. Protect bench marks and existing structures from damage or displacement.

2.3 CLEARING

- A. Clear areas required for access to site and execution of Work.
- B. Remove paving and curbs. At limit of pavement removal, saw cut to full depth of pavement.

- C. Remove fences required for access or within the limits of work.
- D. Remove trees and shrubs to 6 inches above existing ground.
- E. Remove stumps and root system to a depth of 12 inches.
- F. Clear undergrowth and deadwood, without disturbing subsoil.

2.4 DISPOSAL

- A. Stumps, root system, ground cover, paving, curbs and fences within the limits of excavation for remediation shall be considered contaminated unless demonstrated otherwise. Disposed of at either an approved off-site facility for hazardous materials or by incorporating into the solidification process and meeting its testing requirements.
- B. All above ground portions of trees, shrubs, ground cover and only those below ground stumps, roots and groundcover, extracted from outside the limits of remediation, shall be removed from the site. Removal shall be through the road located north of the material placement area. Construct a temporary contamination reduction zone at the north end the levee from which the debris may be delivered to clean vehicles for transport off the site.
- C. Any existing fence or equipment designated by the Owner to be salvaged, shall be decontaminated, if required, stored in a place designated by the Owner, protected and reinstalled at the completion of the work in that area.

END OF SECTION

SECTION 02205

SOIL MATERIALS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Subsoil and topsoil materials.

1.2 RELATED SECTIONS

- A. Documents - Site Specific Work Plan, Former L.A. Darling Facility, NBFF – OU2, Bronson, MI.
- B. Section 01025 - Measurement and Payment.
- C. Section 01410 - Testing Laboratory Services.
- D. Section 02207 - Aggregate Materials.
- E. Section 02211 - Rough Grading.
- F. Section 02223 - Back-filling.
- G. Section 02225 - Trenching.
- H. Section 02231 - Aggregate Base Course.
- I. Section 02923 - Landscape Grading.
- J. Section 02936 - Seeding.

1.3 REFERENCES

- A. ANSI/ASTM D1556 - Test Method for Density of Soil in Place by the Sand-Cone Method.
- B. ANSI/ASTM D698 - Test Methods for Moisture-Density Relations of Soils and Soil-Aggregate Mixtures Using 5.5 lb Rammer and 12 inch Drop.
- C. ASTM D2487 - Classification of Soils for Engineering Purposes.

1.4 SUBMITTALS

- A. Submit under provisions of Section 01300.
- B. Materials Source: Submit name of imported materials suppliers. Provide materials from same source throughout the work. Change of source requires Engineers approval.
- C. Submit Proctor & Moisture Curve for imported materials.

PART 2 PRODUCTS

2.1 SOIL MATERIALS

- A. Remediation Material: Material excavated within the limits of the remedial construction or identified for remediation.
- B. Subsoil Type S1: Excavated and re-used material, not requiring remediation treatment, graded, free of deleterious material and rocks larger than 6 inches.
- C. Subsoil Type S2: Imported material, graded, free of deleterious material and rocks larger than 6 inches.
- D. Topsoil Type S3: Excavated and reused material, not requiring remediation treatment, graded, free of roots, rocks larger than 3 inches, subsoil, debris, large weeds and foreign matter ; conforming to ASTM D2487 Group Symbol OH or PT.
- E. Topsoil Type S4: Imported material consisting of dark organic natural surface soil, approved by Engineer.
- F. Subsoil Type S5: Clay Cap, as required, shall be constructed of clay, type CH or CL, per the Unified Soil Classification System (ASTM D2487). The clay material shall have more than 25 percent of the soil particles finer than a Number 200 sieve size. The clay material shall have a maximum permeability coefficient of 1.0×10^{-7} cm/sec or less, at all points following placement and compaction.

2.2 SOURCE QUALITY CONTROL

- A. Inspection and testing shall be performed under provisions of Section 01410.
- B. Tests and analysis of soil material shall be performed in accordance with ANSI/ASTM D698.
- C. If tests indicate materials do not meet specified requirements, change material and retest at no cost to Owner.

PART 3 EXECUTION

3.1 STOCKPILING

- A. Stockpile materials on site at locations indicated or as designated by Engineer.
- B. Stockpile in sufficient quantities to meet project schedule and requirements.
- C. Separate differing materials with dividers or stockpile apart to prevent mixing.
- D. Direct surface water away from stockpile site to prevent erosion or deterioration of materials.

3.2 STOCKPILE CLEANUP

- A. Remove stockpile, leave area in a clean and neat condition. Grade site surface to prevent free standing surface water.

- B. If a borrow area is indicated, leave area in a clean and neat condition. Grade site surface to prevent free standing surface water.

END OF SECTION

SECTION 02207

AGGREGATE MATERIALS

PART1 GENERAL

1.1 SECTION INCLUDES

- A. Aggregate materials.

1.2 RELATED RECTIONS

- A. Section 01025 - Measurement and Payment.
- B. Section 01410 - Testing Laboratory Services.
- C. Section 02205 - Soil Materials.
- D. Section 02211 - Rough Grading.
- E. Section 02223 - Backfilling.
- F. Section 02225 - Trenching.
- G. Section 02231 - Aggregate Base Course.
- H. Section 02231 - Aggregate Base Course.
- I. Section 02923 - Landscape Grading.

1.3 REFERENCES

- A. ANSI/ASTM C136 - Method for Sieve Analysis of Fine and Coarse Aggregates.
- B. ANSI/ASTM D698 - Test Methods for Moisture-Density Relations of Soils and Soil-Aggregate Mixtures Using 5.5 lb Rammer and 12 inch Drop.
- C. ASTM D2487 - Classification of Soils for Engineering Purposes.

1.4 SUBMITTALS

- A. Submit under provisions of Section 01300.
- B. Submit gradation, proctor & moisture curve.
- C. Materials Source: Submit name of imported materials suppliers. Provide materials from same source throughout the work. Change of source requires Engineer's approval.

PART 2 PRODUCTS

2.1 AGGREGATE MATERIALS

- A. Course Aggregate Type A1: Conforming to Michigan Department of Transportation Standard Specifications for Road and Bridge Construction.

- B. Fine Aggregate Type A4: Conforming to Michigan Department of Transportation Standard Specifications for Road and Bridge Construction.

2.2 SOURCE QUALITY CONTROL

- A. Field inspection and testing will be performed under provisions of Section 01410.
- B. Tests and analysis of aggregate material will be performed in accordance with ANSI/ASTM D698 and ASTM C136.
- C. If tests indicate materials do not meet specified requirements, change material and retest.

PART 3 EXECUTION

3.1 STOCKPILING

- A. Stockpile materials on site at locations indicated or as designated by Engineer.
- B. Stockpile in sufficient quantities to meet project schedule and requirements.
- C. Separate differing materials with dividers or stockpile apart to prevent mixing.
- D. Direct surface water away from stockpile site so as to prevent erosion or deterioration of materials.

3.2 STOCKPILE CLEANUP

- A. Remove stockpile, leave area in a clean and neat condition. Grade site surface to prevent free standing surface water.
- B. If a borrow area is indicated, leave area in a clean and neat condition. Grade site surface to prevent free standing surface water.

END OF SECTION

SECTION 02211

ROUGH GRADING

PART I GENERAL

1.1 SECTION INCLUDES

- A. Removal of topsoil and subsoil.
- B. Cutting, grading, filling and rough contouring the site for site structures, building pads and roads.

1.2 RELATED SECTIONS

- A. Documents: Site Specific Work Plan, Former L.A. Darling Facility, NBFF – OU2, Bronson, MI
- B. Section 01025 - Measurement and Payment.
- C. Section 01410 - Testing Laboratory Services.
- D. Section 02110 - Site Clearing.
- E. Section 02205 - Soil Materials.
- F. Section 02207 - Aggregate Materials.
- G. Section 02222 - Excavating.
- H. Section 02223 - Backfilling.
- I. Section 02225 - Trenching.
- J. Section 02921 - Landscape Grading.

1.3 MEASUREMENT AND PAYMENT

- A. Rough grading costs shall be included as part of the unit prices and lump sums indicated on the bid form.

1.4 REFERENCES

- A. ANSI/ASTM D1556 - Test Method for Density of Soil in Place by the Sand-Cone Method.
- B. ANSI/ASTM D698 - Test Methods for Moisture-Density Relations of Soils and Soil-Aggregate Mixtures Using 10 lb Rammer and 18 inch Drop.

1.5 PROJECT RECORD DOCUMENTS

- A. Submit under provisions of Section 01700.

- B. Accurately record actual locations of utilities remaining, by horizontal dimensions, elevations or inverts, and slope gradients.

PART 2 PRODUCTS

2.1 MATERIALS

- A. Topsoil: Type S3 and Type S4 as specified in Section 02205.
- B. Fill: Type S1 and Type S2 as specified in Section 02205.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify site conditions under provisions of Section 01039.
- B. Verify that survey bench mark and intended elevations for the Work are as indicated.

3.2 PREPARATION

- A. Identify required lines, grades, contours, and datum.
- B. Stake and flag locations of known utilities.
- C. Locate, identify, and protect utilities that remain, from damage.
- D. Protect plant life, lawns, and other features remaining as a portion of final landscaping.
- E. Protect bench marks, existing structures, fences, paving, and curbs from excavating equipment and vehicular traffic.

3.3 SUBSOIL EXCAVATION

- A. Excavate subsoil from areas to be excavated, re-landscaped, or re-graded.
- B. Stockpile in area designated on site or approved by the Engineer, to depth not exceeding 8 feet. Protect from erosion.

3.4 FILLING

- A. Fill areas to contours and elevations with specified materials.
- B. Place fill materials on continuous layers and compact in accordance with Schedule at end of Section.
- C. Maintain optimum moisture content of fill materials to attain required compaction density.
- D. Make grade changes gradual. Blend slope into level areas.

3.5 TOLERANCES

- A. Top Surface of Subgrade: Plus or minus 1 /10 foot.

3.6 FIELD QUALITY CONTROL

- A. Field inspection and testing will be performed under provisions of Section 01410.
- B. Compaction testing will be performed in accordance with ANSI/ASTM D698.
- C. If tests indicate Work does not meet specified requirements, remove Work, replace and retest.
- D. Frequency of Tests: One for every 5,000 square feet for each layer of fill but no less than two for each layer.

3.7 SCHEDULES

- A. Subsoil Fill:
 - 1. Fill Type S1 and Type S2: Maximum 8 inches compacted depth.
 - 2. Compact to minimum 90 percent of maximum density.
- B. Topsoil Fill:
 - 1. Fill Type S3 and Type S4: Maximum 6 inches compacted depth.
 - 2. Compact to minimum 90 percent of maximum density.

END OF SECTION

SECTION 02222

EXCAVATING

PART1 GENERAL

1.1 SECTION INCLUDES

- A. Excavating for slabs-on-grade and paving.
- B. Excavating for site structures.
- C. Excavating of materials to be remediated.

1.2 RELATED SECTIONS

- A. Document: Site Specific Work Plan, Former L.A. Darling Facility, NBFF – OU2, Bronson, MI.
- B. Section 01025 - Measurement and Payment.
- C. Section 01400 - Quality Control.
- D. Section 01500 - Construction Facilities and Temporary Controls.
- E. Section 02211 - Rough Grading.
- F. Section 02223 - Backfilling.
- G. Section 02225 - Trenching.

1.3 MEASUREMENT AND PAYMENT

- A. Excavating costs shall be included as part of the unit prices and lump sums indicated on the Bid Form.

1.4 FIELD MEASUREMENTS

- A. Verify that survey bench mark and intended elevations for the Work are as indicated.

PART 2 PRODUCTS

- 1. Not Used.

PART 3 EXECUTION

3.1 PREPARATION

- A. Identify required lines, levels, contours, and datum.

3.2 EXCAVATION

- A. Underpin any adjacent structures which may be damaged by excavation work.
- B. Excavate subsoil required to remove contaminated soil areas, slabs-on-grade, paving and site structures, and construction operations.
- C. Excavate Remediation Material. Complete the excavation and restoration for Remediation in a work area prior to commencing excavation Remediation in subsequent areas.
- D. Machine slope banks to angle of repose or less, until shored.
- E. Do not interfere with 45 degree bearing splay of foundation.
- F. Grade top perimeter of excavation to prevent surface water from draining into excavation, unless otherwise indicated.
- G. Hand trim excavation if required to meet excavation limits. Remove loose matter.
- H. Remove lumped subsoil, and boulders.
- I. Notify Engineer of unexpected subsurface conditions and discontinue affected Work in area until notified to resume work.
- J. Correct areas over-excavated in accordance with Section 02223.
- K. Stockpile excavated material in area designated on site and place excess clean material in areas designated to be filled.

3.3 FIELD QUALITY CONTROL

- A. Field inspection will be performed under provisions of Section 01410.
- B. Provide for visual inspection of bearing surfaces.

3.4 PROTECTION

- A. Protect excavations by methods required to prevent cave-in or loose soil from falling into excavation.
- B. Protect bottom of excavations and soil adjacent to and beneath foundation, from freezing.

END OF SECTION

SECTION 02223

BACKFILLING

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Building perimeter and site structure backfilling to subgrade elevations.
- B. Site filling and backfilling.
- C. Fill under slabs-on-grade and paving .
- D. Consolidation and compaction as scheduled.
- E. Fill for over-excavation.

1.2 RELATED SECTIONS

- A. Document: Site Specific Work Plan, Former L.A. Darling Facility, NBFF – OU2, Bronson, MI.
- B. Section 01025 - Measurement and Payment.
- C. Section 01400 - Quality Control
- D. Section 01410 - Testing Laboratory Services.
- E. Section 02205 - Soil Materials.
- F. Section 02207 - Aggregate Materials.
- G. Section 02222 - Excavating.
- H. Section 02225 - Trenching.
- I. Section 02923 - Landscape Grading.
- K. Section 03300 - Cast-in-Place Concrete.

1.3 REFERENCES

- A. ANSI/ASTM D1556 - Test Method for Density of Soil in Place by the Sand-Cone Method.
- B. ANSI/ASTM D698-Test Methods for Moisture-Density Relations of Soils and Soil-Aggregate Mixtures Using 10 lb Rammer and 18 inch Drop.
- C. ASTM D-2487 Classification of Soils for Engineering Purposes
- D. ASTM D-422 Gradation (Including Hydrometer)
- E. ASTM D-2216 Moisture Content
- F. ASTM D-423 Liquid Limit

- G. ASTM D-424 Plastic Limit
- H. U.S. Army Corps of Engineers Manual EM-1102-1906, Appendix VII, "Permeability Tests"

PART 2 PRODUCTS

2.1 FILL MATERIALS

- A. Fill Type S1 and Type S2: As specified in Section 02205.

PART 3 EXECUTION

3.1 PREPARATION

- A. Compact subgrade to density requirements for subsequent backfill materials.
- B. Cut out soft areas of subgrade not capable of in situ compaction. Backfill with Type S1 fill and compact to density equal to or greater than requirements for subsequent fill material.
- C. Scarify subgrade surface to a depth of 6-inches to identify soft spots; fill and compact to density equal to or greater than requirements for subsequent fill material.

3.2 BACKFILLING

- A. Backfill areas to contours and elevations with unfrozen materials.
- B. Systematically backfill to allow maximum time for natural settlement. Do not backfill over porous, wet, frozen or spongy subgrade surfaces.
- C. Granular Fill Type A1 and Type A4: Place and compact materials in continuous layers not exceeding 12 inches compacted depth.
- D. Soil Fill Type S1, S2 and Type S5: Place and compact material in continuous layers not exceeding 12 inches compacted depth.
- E. Employ a placement method that does not disturb or damage other work.
- F. Maintain optimum moisture content of backfill materials to attain required compaction density. Backfill against supported foundation walls. Do not backfill against unsupported foundation walls.
- G. Backfill simultaneously on each side of unsupported foundation walls.
- H. Slope grade away from building minimum 2 inches in 10 ft, unless noted otherwise.
- I. Make gradual grade changes. Blend slope into level areas.
- J. Leave fill material stockpile areas free of excess fill materials.

3.3 TOLERANCES

- A. Top Surface of General Backfilling: Plus or minus 1 inch (0.08 feet) from required elevations.

3.4 FIELD QUALITY CONTROL

- A. Field inspection and testing will be performed under provisions of Section 01410.
- B. Compaction testing will be performed in accordance with ANSI/ASTM D698.
- C. If tests indicate Work does not meet specified requirements, remove Work, replace and retest.
- D. Frequency of Tests for clean backfill and solidified material placed in excavated areas: One Density test of soil in place per 5,000 square feet per layer with a minimum of two tests per layer.
- E. Frequency of Tests for Paved Areas:

<u>Type of Test</u>	<u>Minimum Frequency of Test</u>
Classification of Soils for Engineering Purposes	1 test / 5,000 sq. ft./lift
Gradation (including Hydrometer)	1 test / 5,000 sq. ft./lift
Moisture Content	1 test / 5,000 sq. ft./lift
Liquid Limit	1 test / 5,000 sq. ft./lift
Plastic Limit	1 test / 5,000 sq. ft./lift
Moisture Density Curve	1 test / 5,000 sq. ft./lift
Lab Permeability from undisturbed samples after placement (Triaxial cell method)	1 test / 5,000 sq. ft./lift
Density Tests of Soils in place	1 test / 5,000 sq. ft./lift

3.5 PROTECTION OF FINISHED WORK

- A. Protect finished Work under provisions of Section 01500.
- B. Reshape and re-compact fills subjected to vehicular traffic.

END OF SECTION

SECTION 02225

TRENCHING

PART1 GENERAL

1.1 SECTION INCLUDES

- A. Excavating trenches for temporary site use.
- B. Backfilling and compaction.

1.2 RELATED SECTIONS

- A. Document: Site Specific Work Plan, Former L. A. Darling Facility, NBFF – OU2, Bronson, MI.
- B. Section 01025 - Measurement and Payment.
- C. Section 01410 - Testing Laboratory Services.
- D. Section 01500 - Construction Facilities and Temporary Controls.
- E. Section 02205 - Soil Materials.
- F. Section 02207 - Aggregate Materials.
- G. Section 02211 - Rough Grading.
- H. Section 02222 - Excavating.
- I. Section 02223 - Backfilling.
- J. Section 02923 - Landscape Grading.
- K. Section 03300 - Cast-In-Place Concrete.

1.3 REFERENCES

- A. ANSI/ASTM C136 - Method for Sieve Analysis of Fine and Coarse Aggregates.
- B. ANSI/ASTM D698 - Test Methods for Moisture-Density Relations of Soils and Soil-Aggregate Mixtures, Using 5.5 lb (2.49 Kg) Rammer and 12 inch (304.8 mm) Drop.
- C. ANSI/ASTM D1556 - Test Method for Density of Soil in Place by the Sand-Cone Method.
- D. ASTM D3017 - Test Methods for Moisture Content of Soil and Soil-Aggregate Mixtures.

1.4 DEFINITIONS

- A. Utility: Any buried culvert, pipe, conduit, or cable.

1.5 FIELD MEASUREMENTS

- A. Verify that survey bench mark and intended elevations for the Work are as shown on drawings.

1.6 COORDINATION

- A. Coordinate work under provisions of Section 01039.
- B. Verify work associated with lower elevation utilities are complete before placing higher elevation utilities.

PART 2 PRODUCTS

2.1 FILL MATERIALS

- A. Fill Type S1: As specified in Section 02205.
- B. Structural Fill Type A4: As specified in Section 02207.
- C. Concrete: Structural concrete conforming to Section 03300 with a compressive strength of 3500 psi.

PART 3 EXECUTION

3.1 PREPARATION

- A. Identify required lines, levels, contours, and datum.
- B. Protect trees, plant life, lawns, and other features remaining as a portion of final landscaping.
- C. Protect bench marks, existing structures, fences, paving, and curbs from excavation equipment and vehicular traffic.
- D. Maintain and protect above and below grade utilities which are to remain.
- E. Cut out soft areas of subgrade not capable of in situ compaction. Backfill with Fill Type S1 and compact to density equal to or greater than requirements for subsequent backfill material.

3.2 EXCAVATION

- A. Excavate subsoil required for installation of utilities.
- B. Correct areas over excavated in accordance with Section 02222.
- C. Stockpile excavated material in area designated on site.

3.3 BACKFILLING

- A. Backfill trenches to contours and elevations with unfrozen materials.
- B. Systematically backfill to allow maximum time for natural settlement. Do not backfill over porous, wet, frozen or spongy subgrade surfaces.

- C. Granular Fill Type A4: Place and compact materials in continuous layers not exceeding 8 inches compacted depth.
- D. Soil Fill Type S1: Place and compact material in continuous layers not exceeding 12 inches compacted depth.
- E. Employ a placement method that does not disturb or damage utility.
- F. Maintain optimum moisture content of fill materials to attain required compaction density.
- G. Leave fill material stockpile areas completely free of excess fill materials.

3.4 TOLERANCES

- A. Top Surface of General Backfilling: Plus or minus 1 inch (0.08 feet) from required elevations.

3.5 FIELD QUALITY CONTROL

- A. Field inspection and testing will be performed under provisions of Section 01410.
- B. Compaction testing will be performed in accordance with ANSI/ASTM D698.
- C. If tests indicate Work does not meet specified requirements, remove Work, replace, compact, and retest.
- D. Frequency of Tests: One test per 500 linear feet of utility installed in trench, per layer of backfill above top of bedding, with a minimum of one test per layer.

3.6 PROTECTION OF FINISHED WORK

- A. Protect finished Work under provisions of Section 01500.
- B. Reshape and re-compact fills subjected to vehicular traffic during construction.

3.7 SCHEDULE

- A. Utilities at least 2 feet outside the limits of roadways and designated haul roads:
 - 1. Cover and bedding with Fill Type S1, in 12 inch lifts, compacted to 90 percent.
- B. Utilities under or within 2 feet of lines of roadways and designated haul roads:
 - 1. Cover bedding with Fill Type A4, to subgrade elevation, compacted to 95 percent.

END OF SECTION

SECTION 02231

AGGREGATE BASE COURSE

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Aggregate base course.
- B. Geotextile fabric for permanent access roads.

1.2 RELATED SECTIONS

- A. Document: Site Specific Work Plan, Former L. A. Darling Facility – NBFF – OU2, Bronson, MI.
- B. Section 01025 - Measurement and Payment.
- C. Section 02211 - Rough Grading.
- D. Section 02223 - Backfilling.
- E. Section 02225 - Trenching.
- F. Section 02520 - Portland Cement Concrete Paving.
- G. Section 02921 - Landscape Grading.

1.3 REFERENCES

- A. ANSI/ASTM D698 - Test Methods for Moisture-Density Relations of Soils and Soil-Aggregate Mixtures, Using 5.5 lb Rammer and 12 inch Drop.
- B. ASTM D3017 - Test Methods for Moisture Content of Soil and Soil-Aggregate Mixtures.

1.4 SUBMITTALS

- A. Submit under the provisions of Section 01300.
- B. Manufacturers product data for geotextile fabric including installation instructions, certification that fabric meets or exceeds specified requirements, samples, and test reports.

PART 2 PRODUCTS

2.1 FILL MATERIALS

- A. Coarse Aggregate Fill Type A1 : As specified in Section 02207.

2.2 GEOTEXTILE FABRIC

- A. The fabric shall be a woven or non-woven fabric consisting of long chain polymeric filaments or yarns formed into a stable network such that the filaments or yarns retain their relative position to each other similar to Mirafi 600x by Mirafi, Inc. The fabric shall be inert to commonly encountered chemicals and conform to the following properties:

PROPERTY	TEST METHOD	REQUIREMENT
Grab Strength	ASTM D1682	300
Grab Tension Elongation %	ASTM D1682	20
Burst Strength, psi	ASTM D751	600
Trapazoid Tear Strength, lbs	ASTM D2263	120
E. O. S., U.S. (standard sieve)	CW002215	50 - 80
Water Flow Rate, gpm/ft?	20 cm of head	40
Water Permeability, K, cm/sec	CFMC-FFET-2	0.010
Modulus (load @ 10% elongation), lbs.	ASTM D1682	150
Abrasion Resistance, lb.	ASTM D1175	130
Ultraviolet Resistance, % strength retention	ASTM D1682 after 500 Xenon weatherometer hrs.	90

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify substrate has been inspected, gradients and elevations are correct, and dry.
- B. Verify that substrate upon which fabric will be installed is free of organic matter, irregularities, protrusions and abrupt changes that could damage the fabric.

3.2 AGGREGATE PLACEMENT

- A. Place aggregate in maximum 8 inch layers and roller compact.
- B. Level and contour surfaces to elevations and gradients indicated.
- C. Add water to assist compaction. If excess water is apparent, remove aggregate and aerate to reduce moisture content.
- D. Use mechanical tamping equipment in areas inaccessible to compaction equipment.
- E. Contractor shall not damage fabric during the installation.

3.3 TOLERANCES

- A. Flatness: Maximum variation of 1/24 inch measured with 10 foot straight edge.
- B. Scheduled Compacted Thickness: Within 1/2 inch.
- C. Variation from True Elevation: Within 1 /2 inch.

3.4 FIELD QUALITY CONTROL

- A. Field inspection and testing will be performed under provisions of Section 01410.
- B. Compaction testing will be performed in accordance with ANSI/ASTM D698.
- C. If tests indicate Work does not meet specified requirements, remove Work, replace and retest.
- D. Frequency of Tests: Two tests per site use on private property or as directed by Engineer, with at least two tests per layer.

END OF SECTIONS

SECTION 02260

SOIL SOLIDIFICATION/STABILIZATION

PART1 GENERAL

1.1 SECTION INCLUDES

- A. Treatment and curing of contaminated soil removed from the Site.

1.2 RELATED SECTIONS

- A. Section 01400 - Testing Services
- B. Section 01560 - Temporary Controls
- C. Section 02205 - Soil Materials.
- D. Section 02207 - Aggregate Materials.
- E. Section 02222 - Excavation.
- F. Section 02223 - Backfilling.

1.3 UNIT PRICE - MEASUREMENT AND PAYMENT

- A. Solidified/Stabilized Soil:
 - 1. Basis of Measurement: By the in-place cubic yard of material removed from excavation limits as defined on the drawings, excluding side slope materials not specifically indicated to be part of the remediation shown on the drawings.
 - 2. Basis of Payment: Includes all materials, labor and equipment necessary for clearing, excavating, hauling, stockpiling, offsite processing, backfilling the excavation, rough and final grading and seeding. It also includes supplying ingredient materials, pulverizing, blending, mixing, placing for curing, and testing prior to placement in the final offsite disposal facility.

1.4 REFERENCES

- A. ASTM C150 - Portland Cement or equivalent chemical stabilization agent.

1.5 SUBMITTALS

- A. Submit mix design and materials mix ratio that will achieve a reduction in the quantity of metals to the appropriate limit based on the TCLP toxicity crushed sample protocol. Mix design shall allow the processed material to be granular so that it may be transported to the final offsite disposal facility via truck.

1.6 QUALITY ASSURANCE

- A. Maintain one copy of each document on site.

- B. The acceptance criteria for the solidification process shall be based on the TCLP-Toxicity testing. The data shall be evaluated for compliance with acceptance criteria through statistical analysis at the 90 percent confidence interval using protocols in Chapter 9, Volume II of SW-846. The number of samples to be collected influences the confidence interval for the mean metals concentration μ according to the following general formula:

$$\mu \pm t_{n-1, 1-a/2} [S/n^{1/2}]$$

Where S is the standard deviation, n is the number of samples and a is the desired percent confidence limit. EPA Test Methods for Evaluating Solid Wastes (SW-846) recommend a confidence interval of 90 percent. Assuming a standard deviation value of 1 mg/L for mean value of 3.5 mg/L, the variability at n=4 will be less than 1 mg/L. These results are shown as $\mu \pm 0.819$ mg/L. Accordingly, quadruplicate samples are required. The confidence limits table for the appropriate number of TCLP Toxicity samples is:

<u>n</u>	<u>90 Percent Confidence Interval</u>
2	$\mu \pm 2.176$
3	$\mu \pm 1.089$
4	$\mu \pm 0.819$
5	$\mu \pm 0.686$

PART 2 PRODUCTS

2.1 MIX MATERIALS

- A. Coarse Aggregate Type A1: As specified in Section 02207.
- B. Fine Aggregate (Sand) Type A3: As specified in Section 02207.
- C. Subsoil: Type S1 as specified in Section 02205.
- D. Cement: ASTM C150 Portland cement, Normal Type 1 or approved chemical stabilization agent.
- E. Water: Water quality and quantity for use in the process is the responsibility of the contractor.

2.2 EQUIPMENT

- A. No stabilization of the metals contaminated materials is to be conducted at the Site. Information shall be submitted by the Contractor documenting the stabilization facility has the equipment capable of pulverizing, if necessary, blending, mixing and placing materials, wetting, curing and testing of material.
- B. Excavation equipment necessary for removal of the soil to be remediated.

- C. Storage and transport equipment necessary for the efficient, safe and dry handling of arsenic and lead contaminated soils from the site to the stabilization facility and to the off site landfill for ultimate disposal.

2.3 OFF SITE MIXING

- A. Mix soil to be remediated, blending subsoil, cement, sand or other agents and aggregate in order to capsule the metals contamination. Quantity of cement or stabilization agent shall be sufficient to allow cured material to pass the TCLP-Toxicity test criteria indicated above.
- B. Highly contaminated soils may be blended with fill material or less contaminated soils prior to processing in order to achieve the required reduction in metals concentrations. The analysis of the in-place metals quantities is available from the reference documents listed at the beginning of this project manual.
- C. Carefully add water to the mix to achieve a consistent mixture without lumping yet not create a wet plastic consistency.
- D. Maintain optimum moisture content of mix materials to attain required solidification and composition capability.
- E. Mix to obtain an unconfined granular material for placement in the curing area.
- F. After processing and before placement in the material placement area, all treated soil shall be kept under covers to protect it from weather and to keep the treated soil from hydrating too rapidly.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify that any materials to be reused are acceptable.

3.2 EXCAVATION & SOIL TESTING

- A. Protect adjacent structures which may be damaged by this work.
- B. Excavate contaminated soil to the depths indicated on the drawings, sufficient to obtain a clean reading for the contaminant levels in the excavated area.
- C. Excavation not to interfere with normal 45 degree bearing splay of any foundation without protection of the foundation.
- D. Remove lumped subsoil, boulders, and rock up to 1 /3 cu yd measured by volume.
- E. Notify Engineer of unexpected subsurface conditions. Discontinue affected Work in area until notified to resume work.
- F. Correct unauthorized excavation at no extra cost to Owner.
- G. Correct areas over excavated without agreement of the Engineer at no extra cost to Owner.
- H. Stockpile excavated material in area designated on site and remove excess material not

being reused, from site.

- I. Test excavated area at the vertical limit to verify that the soils contain no more than the appropriate regulatory standard for the metals contaminant of concern. The minimum number of test samples shall be at the same 30 foot grid locations used in the Site Sampling Plan, prepared by the Owner.

The locations for the samples shall be determined by the Engineer. If a sample indicates metals quantities above the appropriate limits, excavation shall continue to a depth agreed to by the Engineer. A second round of sampling shall then be performed. Payment for the additional excavation and sampling shall be at the rates listed on the Bid Form..

- J. Prior to backfilling a given area, the Owner and/or EPA may verify that the area has been remediated sufficiently to allow the next area to be exposed and treated.

3.3 CLEAN SOIL PLACEMENT AND BACKFILLING

- A. Place clean backfill as directed by the Engineer..
- B. Compact the placed materials to 85 percent standard proctor, ASTM D698. One test shall be taken for every 5,000 square feet per layer but no less than twice per layer.
- C. Make grade changes gradual. Blend slope into level areas.

3.4 FIELD QUALITY CONTROL

- A. Laboratory data confirming the effectiveness of the offsite stabilization shall be performed for every 500 cubic yards of material processed or daily whichever occurs first. Forward the information on the samples taken daily to the Engineer.
- B. If tests indicate material does not meet specified requirements, remove, reprocess and retest at no cost to Owner.
- C. Record the feed rate and admixture/reagent addition for every 500 cubic yards of feed or daily whichever occurs first. Forward this information to the Engineer daily.

END OF SECTION

SECTION 02520

PORTLAND CEMENT CONCRETE PAVING

PART1 GENERAL

1.1 SECTION INCLUDES

- A. Concrete decontamination pads, gutters and curbs.

1.2 RELATED SECTIONS

- A. Section 02211 - Rough Grading: Preparation of site for paving.
- B. Section 02223 - Backfilling: Compacted subbase for paving.
- C. Section 02231 - Aggregate Base Course compacted aggregate base course.
- D. Section 02923 - Landscape Grading: Preparation of subsoil at pavement perimeter.
- E. Section 03100 - Concrete Framework.
- F. Section 03200 - Concrete Reinforcement.
- G. Section 03300 - Cast-In-Place.

1.3 SUBMITTALS

- A. Submit under provisions of Section 01300.

1.4 QUALITY ASSURANCE

- A. Perform work in accordance with ACI 301 requirements of Sections 03100, 03200, and 03300.

PART 2 PRODUCTS

2.1 FORM MATERIALS

- A. Form Materials: As specified in Section 03100.

2.2 REINFORCEMENT

- A. Reinforcing Steel and Wire Fabric: Type specified in Section 03200.

2.3 CONCRETE MATERIALS

- A. Concrete Materials: As specified in Section 03300.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify base conditions under provisions of Section 01039.
- B. Verify compacted granular base is acceptable and ready to support paving and imposed loads.
- C. Verify gradients and elevations of base are correct.

3.2 SUBBASE

- A. Section 02231 - Aggregate Base Course forms the base construction for work of this Section.

3.3 PREPARATION

- A. Moisten base to minimize absorption of water from fresh concrete.
- B. Notify Engineer minimum 24 hours prior to commencement of concreting operations.

3.4 FORMING

- A. Place and secure forms to correct location, dimension, and profile.
- B. Assemble formwork to permit easy stripping and dismantling without damaging concrete.
- C. Place joint filler vertical in position, in straight lines. Secure to formwork during concrete placement.

3.5 REINFORCEMENT

- A. Place reinforcement as indicated.
- B. Interrupt reinforcement at contraction expansion joints.

3.6 PLACING CONCRETE

- A. Coordinate installation of snow melting components.
- B. Place concrete as specified in Section 03300.

3.7 JOINTS

- A. Place expansion and contraction joints as indicated.
- B. Place joint filler between paving components and building or other appurtenances.

3.8 FINISHING

- A. Area Paving: Light broom.
- B. Curbs and Gutters: Light broom.

- C. Place curing compound on exposed concrete surfaces immediately after finishing. Apply in accordance with manufacturer's instructions.

3.9 FIELD QUALITY CONTROL

- A. Field inspection and testing will be performed under provisions of Section 01410 and Section 03300.

3.10 PROTECTION

- A. Immediately after placement, protect pavement from premature drying, excessive hot or cold temperatures, and mechanical injury.

END OF SECTION

SECTION 02831

CHAIN LINK FENCES AND GATES

PART1 GENERAL

1.1 SECTION INCLUDES

- A. Fence framework, fabric, and accessories.
- B. Excavation for post bases; concrete foundation for posts.
- C. Manual gates and related hardware.

1.2 RELATED SECTIONS

- A. Section: Concrete anchorage for posts.

1.3 REFERENCES

- A. ANSI/ASTM A123 - Zinc (Hot Dip Galvanized) Coatings on Iron and Steel Products.
- B. ASTM A116 - Zinc-Coated (Galvanized) Steel Woven Wire Fence Fabric.
- C. ASTM A120 - Pipe, Steel, Black and Hot-Dipped Zinc Coated (Galvanized) Welded and Seamless, for Ordinary Uses.
- D. ASTM A121 - Zinc-Coated (Galvanized) Steel Barbed Wire.
- E. ASTM A153 - Zinc Coating (Hot-Dip) on Iron and Steel Hardware.
- F. ASTM A392 - Zinc-Coated Steel Chain-Link Fence Fabric.
- G. ASTM A428 - Weight of Coating on Aluminum-Coated Iron or Steel Articles.
- H. ASTM A569 - Steel, Carbon (0.15 Maximum Percent), Hot-Rolled Sheet and Strip Commercial Quality.
- J. FS RR-F-191 - Fencing, Wire and Post Metal (and Gates, Chain Link Fence Fabric, and Accessories).

1.4 SYSTEM DESCRIPTION

- A. Fence Height: 6 feet nominal or as indicated on Drawings.
- B. Line Post Spacing: At intervals not exceeding 10 feet.

1.5 SUBMITTALS

- A. Submit under provisions of Section 01300.
- B. Product Data: Provide data on fabric, posts, accessories, fittings and hardware.

1.6 PROJECT RECORD DOCUMENTS

- A. Submit under provisions of Section 01700.
- B. Accurately record actual locations of property perimeter posts relative to property lines and easements.

1.7 QUALITY ASSURANCE

- A. Perform Work in accordance with FS RR-F-191.

1.9 FIELD MEASUREMENTS

- A. Verify by field measurements the location and lengths required for fences and gates.

PART 2 PRODUCTS

2.1 MATERIALS

- A. Framing (Steel): ASTM A120; Schedule 40 steel pipe, standard weight, welded joints permitted.
- B. Fabric Wire (Steel): FS RR-F-191 Type I - zinc coated steel.
- C. Barbed Wire: ASTM A121 galvanized steel; 12 gage wire, 3 strands, 4 points at 5 inches on center.
- D. Concrete: Type specified in Section 03300.

2.3 COMPONENTS

- A. Line Posts: 2.38 inch diameter.
- B. Corner and Terminal Posts: 2.88 inch steel pipe.
- C. Gate Posts: 6.63 inch diameter steel pipe.
- D. Top and Brace Rail: 1.66 inch diameter, plain end, sleeve coupled steel pipe.
- E. Gate Frame: 1.66 inch diameter for welded fittings and truss rod fabrication.
- F. Fabric: 2 inch diamond mesh interwoven wire, 9 gage thick, top selvage twisted tight, bottom selvage knuckle end closed.
- G. Tension Wire: 6 gage thick steel, single strand.
- H. Tie Wire: Aluminum alloy steel wire.

2.4 ACCESSORIES

- A. Caps: Cast steel or malleable iron, galvanized; sized to post diameter, set screw retainer.

- B. Fittings: Sleeves, bands, clips, rail ends, tension bars, fasteners and fittings; steel.
- C. Extension Arms: Cast steel galvanized, to accommodate 3 strands of barbed wire, single arm, sloped to 45 degrees.
- D. Gate Hardware: Fork latch with gravity drop, center gate stop and drop rod; two 180 degree gate hinges per leaf and hardware for padlock.

2.5 FINISHES

- A. Components and Fabric: Galvanized to ANSI/ASTM A123; 2.0 oz/sq ft coating.
- B. Hardware: Galvanized to ASTM A153, 2.0 oz/sq ft coating.
- C. Accessories: Same finish as framing.

PART 3 EXECUTION

3.1 INSTALLATION

- A. Install framework, fabric, accessories and gates in accordance with ANSI/ASTM F567 .
- B. Set intermediate, terminal and gate posts plumb, in concrete footings with top of footing 2 inches above finish grade. Slope top of concrete for water runoff.
- C. Line Post Footing Depth Below Finish Grade: 39 inches .
- D. Corner, Gate and Terminal Post Footing Depth Below Finish Grade: 51 inches.
- E. Brace each gate and corner post to adjacent line post with horizontal center brace rail [and diagonal truss rods]. Install brace rail, one bay from end and gate posts.
- F. Provide top rail through line post tops and splice with 7 inch long rail sleeves.
- G. Install center brace rail and diagonal truss rods on each gate and corner post back to adjacent line post.
- H. Stretch fabric between terminal posts or at intervals of 100 feet maximum, whichever is less.
- I. Position bottom of fabric 2 inches above finished grade.
- J. Fasten fabric to top rail, line posts, braces, and bottom tension wire with tie wire at maximum 15 inches on centers.
- K. Attach fabric to end, corner, and gate posts with tension bars and tension bar clips.
- L. Install bottom tension wire stretched taut between terminal posts.
- M. Install support arms sloped outward and attach barbed wire; tension and secure.
- N. Install gate with fabric and barbed wire overhang to match fence. Install three hinges per leaf, latch, catches, drop bolt.

- O. Provide concrete center drop to footing depth and drop rod retainers at cent of double gate openings.
- P. Install ditch guards at places where fencing crosses ditches.

END OF SECTION

SECTION 02923
LANDSCAPE GRADING

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Final grade topsoil for finish landscaping.

1.2 RELATED SECTIONS

- A. Section 01410 - Testing Laboratory Services.
- B. Section 02205 - Soil Materials.
- C. Section 02211 - Rough Grading.
- D. Section 02223 - Backfilling.
- E. Section 02225 - Trenching.
- F. Section 02231 - Aggregate Base Course.
- G. Section 02520 - Portland Cement Concrete Paving.
- H. Section 02936 - Seeding.

1.3 MEASUREMENT AND PAYMENT

- A. Costs for landscape grading shall be included as part of the unit prices and lump sums indicated on the Bid Form.

PART 2 PRODUCTS

2.1 MATERIAL

- A. Topsoil: Fill Type S3 as specified in Section 02205.
- B. Topsoil: Fill Type S4 as specified in Section 02205.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify building and trench backfilling has been inspected.
- B. Verify substrate base has been contoured and compacted.

3.2 SUBSTRATE PREPARATION

- A. Eliminate uneven areas and low spots.

- B. Remove debris, roots, branches, stones, in excess of 6-inches in size.
- C. Scarify subgrade to depth of 3 inches where topsoil is scheduled. Scarify in areas where equipment is used for hauling and spreading topsoil and has compacted subsoil.

3.3 PLACING TOPSOIL

- A. Place topsoil in areas to be seeded to a nominal depth of 4 inches. Place topsoil during dry weather.
- B. Fine grade topsoil eliminating rough or low areas. Maintain profiles and contour of subgrade.
- C. Remove roots, weeds, rocks and foreign material while spreading.
- D. Manually spread topsoil close to trees plants building and edges of roads to prevent damage.
- E. Lightly compact placed topsoil.
- F. Remove surplus subsoil and topsoil from site.
- G. Leave stockpile area and site clean and raked, ready to receive landscaping.

3.4 TOLERANCES

- A. Top of Topsoil: Plus or minus 1 inch.

3.5 PROTECTION

- A. Protect landscaping and other features remaining as final work.
- B. Protect existing structures, fences, sidewalks, utilities, paving and curbs.

END OF SECTION

SECTION 02936

SEEDING

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Seeding hydroseeding, mulching and fertilizer.
- B. Maintenance.

1.2 RELATED SECTIONS

- A. Section 02205 - Soil Materials.
- B. Section 02223 - Backfilling.
- C. Section 02225 - Trenching.
- D. Section 02923 - Landscape Grading.

1.3 MEASUREMENT AND PAYMENT

- A. Costs for seeding shall be included as part of the unit prices and lump sums indicated on the Bid Form.

1.4 MAINTENANCE DATA

- A. Submit under provisions of Section 01700.
- B. Maintenance Data: Include maintenance instructions, cutting method and maximum grass height; types, application frequency, and recommended coverage of fertilizer.

1.5 QUALITY ASSURANCE

- A. Provide seed mixture in containers showing percentage of seed mix, year of production, net weight, date of packaging, and location of packaging.

1.6 REGULATORY REQUIREMENTS

- A. Comply with regulatory agencies for seed and fertilizer.
- B. Provide certificate of compliance from authority having jurisdiction indicating approval of seed mixture.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, protect and handle products to site under provisions of Section 01600.
- B. Deliver grass seed mixture in sealed containers. Seed in damaged packaging is not acceptable.

- C. Deliver fertilized in waterproof bags showing weight, chemical analysis, and name of manufacturer.

1.8 COORDINATION

- A. Coordinate work as described in Section 01010.

1.9 MAINTENANCE SERVICE

- A. Maintain seeded areas immediately after placement until grass is well established and exhibits a vigorous growing condition for three cuttings.

PART 2 PRODUCTS

2.1 SEED MIXTURE

- A. Seed Mixture shall meet the requirements of Michigan Department of Transportation for seeding.

2.2 ACCESSORIES

- A. Mulching Material: Oat or wheat straw, free from weeds, foreign matter detrimental to plant life, and dry. Hay or chopped cornstalks are not acceptable.
- B. Hydro-Mulching Material: Wood cellulose fiber, manufactured specifically for hydro-mulching, free of growth or germination inhibiting ingredients.
- C. Fertilizer: Ohio Department of Transportation Standard Specifications recommended for grass, with fifty percent of the elements derived from organic sources; of proportion necessary to eliminate any deficiencies of topsoil, as indicated in analysis.
- D. Water: Clean, fresh and free of substances or matter which could inhibit vigorous growth of grass.
- E. Erosion Fabric: Jute matting, open weave, or synthetic netting or matting, manufactured specifically for erosion control.
- F. Stakes: Softwood lumber, chisel pointed.
- G. String: Inorganic fiber.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify that prepared soil base is ready to receive the work of this Section.

3.2 FERTILIZING

- A. Apply fertilizer in accordance with manufacturer's instructions.
- B. Apply after smooth raking of topsoil and prior to roller compaction.
- C. Do not apply fertilizer at same time or with same machine as will be used to apply seed.

- D. Mix thoroughly into upper 2 inches of topsoil.
- E. Lightly water to aid the dissipation of fertilizer.

3.3 SEEDING

- A. Apply seed at a rate of 2.5 lbs per 1000 sq ft evenly in two intersecting directions. Rake in lightly.
- B. Do not seed areas in excess of that which can be mulched on same day.
- C. Planting Season: As allowed by Michigan Department of Transportation.
- D. Do not sow immediately following rain, when ground is too dry, or during windy periods.
- E. Immediately following seeding apply mulch to a thickness of 1 /8 inches. Maintain clear of shrubs and trees.
- F. Apply water with a fine spray immediately after each area has been mulched. Saturate to 4 inches of soil.

3.4 HYDROSEEDING

- A. Apply seeded slurry with a hydraulic seeder at a rate of 2.5 lbs per 1000 sq ft evenly in two intersecting directions.
- B. Do not hydroseed area in excess of that which can be mulched on same day.
- C. Immediately following seeding, apply mulch to a thickness of 1/8 inches. Maintain clear of shrubs and trees.
- D. Apply water with a fine spray immediately after each area has been mulched. Saturate to 4 inches of soil.

3.5 SEED PROTECTION

- A. Identify seeded areas with stakes and string around area periphery. Set string height to 18 inches. Space stakes at a maximum 60 inches.
- B. Cover seeded slopes where grade is steeper than 4 horizontal to 1 vertical with erosion fabric. Roll fabric onto slopes without stretching or pulling.
- C. Lay fabric smoothly on surface, bury top end of each section in 6 inch (150 mm) deep excavated topsoil trench. Provide 12 inch overlap of adjacent rolls. Backfill trench and rake smooth, level with adjacent soil.
- D. Secure outside edges and overlaps at 36 inch intervals with stakes.
- E. Lightly dress slopes with topsoil to ensure close contact between fabric and soil.
- F. At sides of ditches, lay fabric laps in direction of water flow. Lap ends and edges minimum 6 inches.

3.6 MAINTENANCE

- A. Mow grass at regular intervals to maintain at a maximum height of 4 inches. Do not cut more than 1 /3 of grass blade at any one mowing.
- B. Neatly trim edges and hand clip where necessary.
- C. Immediately remove clippings after mowing and trimming.
- D. Water to prevent grass and soil from drying out..
- E. Immediately reseed areas which show bare spots.
- F. Protect seeded areas with warning signs during maintenance period.

END OF SECTION